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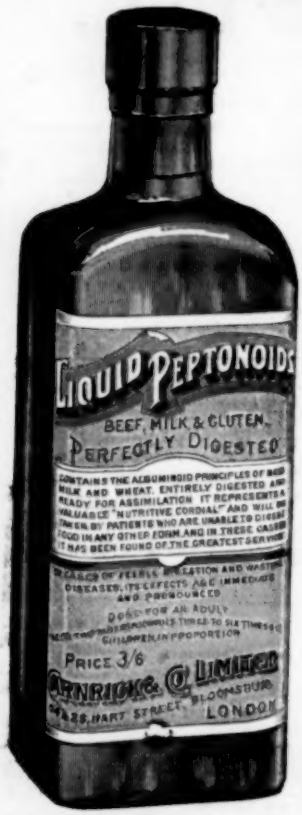

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A Clinical Lecture
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REMOVAL OF THE GALL-BLADDER (CHOLECYSTECTOMY).

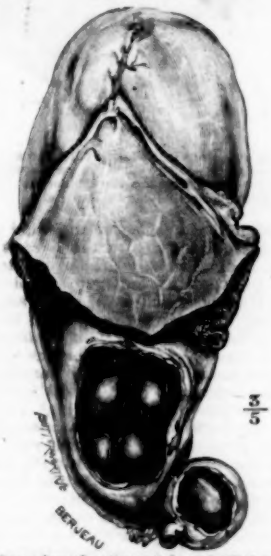
Delivered at the Middlesex Hospital

BY J. BLAND-SUTTON, F.R.C.S. ENG.
SURGEON TO THE HOSPITAL.

GENTLEMEN,—A study of the stages by which operations on the gall-bladder have reached their present satisfactory position is interesting, because it repeats the history of surgical efforts to deal with large cysts of many kinds. The early operation was the simple measure known as tapping, in which the fluid is withdrawn by means of a trocar and cannula, or the improved apparatus known as an aspirator.

Tapping, still employed for hydroceles, was formerly the only method used for ovarian cysts, hydatids of the viscera, and occasionally for a distended gall-bladder. After tapping, many cysts refilled and the operation had to be repeated. In order to avoid this it became the practice to expose the cyst wall through an incision, to evacuate the contents, to stitch the edges of the cyst wall to the margin of the wound made in the parietes and thus to establish a fistula. This method was largely employed for many kinds of cysts (hydatids, hydronephrosis, pancreatic cysts, &c.), and is still in use for large gall-bladders. As surgeons became bolder in these matters they found better results follow the complete removal of the cysts and in this way ovariotomy replaced tapping for ovarian cysts; enucleation of the mother cyst abolished tedious drainage in the case of echinococcus cysts and colonies; nephrectomy replaced nephrotomy for cystic conditions of the kidney, and a study of periodical literature shows in the clearest possible way that removal of the gall-bladder (cholecystectomy) is

FIG. 1.

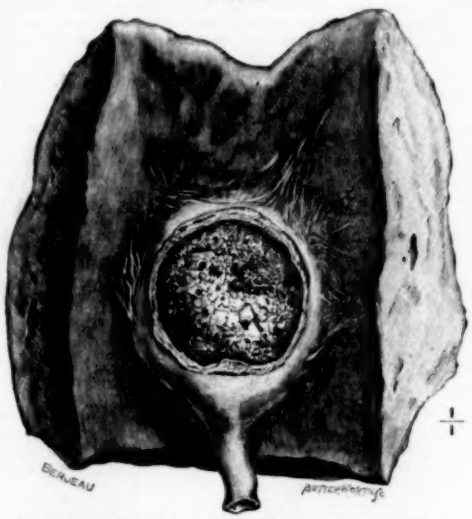


A gall-bladder enlarged, attenuated, and filled with mucus secondary to obstruction of the cystic duct by a gall-stone. The linguiform process of liver attached to the gall-bladder was removed with it. (Museum of the Royal College of Surgeons of England.)

surely and safely replacing the clumsy and unsatisfactory method of opening and draining the gall-bladder known as cholecystotomy. It will be my purpose in this lecture to show you some of the advantages which follow from this improvement in the surgical treatment of diseases of the gall-bladder.

Anatomically the gall-bladder with the cystic duct is a diverticulum from the main bile duct, and in its normal condition the fundus of the gall-bladder projects as a thin translucent sac beyond the free margin of the liver; when the gall-bladder becomes infected and inflamed its relation to the free margin of the liver becomes changed and these alterations have to be carefully considered by those who undertake operations on this viscus. The simplest condition is met with when the cystic duct is obstructed by a gall-stone so that bile no longer enters the gall-bladder; the mucus secreted by the glands in its mucous membrane no longer escapes along the duct, slowly accumulates, and distends it uniformly. The common term applied to a gall-bladder distended in this way is hydrops vesicæ (or cystidis) felleæ: in the pathologic sense it is a mucocele; and there is no limit to the size these calculous mucoceles may attain,

FIG. 2.



A shrunken gall-bladder containing a solitary calculus. (Museum of the Royal College of Surgeons of England.)

and in rare instances they have extended so low in the abdomen as to be mistaken even by surgeons of experience for ovarian cysts and operated upon under this impression. When a gall-bladder enlarges in this way its surface which is in contact with the liver slowly drags upon the hepatic tissue, and it is usual to find on its anterior surface a tongue-like process of the liver. The formation of the linguiform processes have been especially studied by Riedel, and they are of clinical interest. In cases of "hydrops," especially if there is great enlargement of the gall-bladder, this tongue-like process of liver may be long, extremely attenuated, and almost white in colour. An example of such a process is represented in Fig. 1. In removing a gall-bladder of this kind it is usually necessary to exsect a portion of this lobe. I removed this specimen in 1902 from a woman 28 years of age.

An inflamed gall-bladder will enlarge, and in some cases exhibit much the same relation to the liver as a mucocele, but in a chronically inflamed gall-bladder, and often one that is acutely inflamed, the walls are congested and swollen and the hepatic tissue bounding the fossa for the gall-bladder will greatly be thickened and congested, and as a result the gall-bladder will appear as if imbedded in the liver, and often no portion of its fundus appears below the margin of the liver. In some of these cases the enlarging gall-bladder will push a tongue of hepatic tissue in front of it; this causes a hard lump to be felt in the gall-bladder region, and surgeons have often been surprised to find in the course of an operation that the lump which they had felt previously to the operation, and which they confidently regarded as the gall-bladder, was really a process of the liver overlying it. On several occasions in operating for acute cholecystitis so completely has the gall-bladder been concealed by the swollen hepatic

tissue forming the margins of its fossa that one has had to make a particular search for it. When the gall-bladder has been the seat of acute cholecystitis and the inflammatory products have escaped by the ducts or through an internal biliary fistula, the inflammation subsides (becomes chronic), the gall-bladder shrinks, and if it be free from concretions may atrophy. When it contains gall-stones its complete disappearance is prevented, and the gall-bladder will be found on the under surface of the liver far removed from the free margin of the liver. (Fig. 2.) In the early days of operations on the gall-bladder, when it was the universal custom to stitch its walls to the margin of the wounds, the treatment of such shrunken gall-bladders was a source of much anxiety; now, of course, they are excised.

Perhaps the rarest abnormal relation of a calculous gall-bladder to the liver is one described by Wendel. He operated on a woman, 35 years of age, on account of a painful swelling in the right iliac region, expecting to find an "appendix abscess," but he found a suppurating gall-bladder containing calculi and pus; it had perforated (Fig. 3). The cystic duct measured three and a quarter

FIG. 3.

A calculous gall-bladder with a long cystic duct (3¼ inches) which had undergone axial rotation. The patient, a woman 35 years of age, recovered after cholecystectomy. (Wendel.)

FIG. 4.

A long legume-shaped gall-bladder removed from a woman, 45 years of age.

inches from the free border of the liver to the neck of the gall-bladder and was very much twisted. The patient recovered. The specimen described by Wendel is the only example I can find in the literature relating to the gall-bladder but the forms assumed by calculous gall-bladders and their relation to its free margins are very various. The most curious specimen in this respect which has come under my notice is the gall-bladder represented in Fig. 4. It hung from the under surface of the liver like a long pea-pod, the neck forming the stalk, and its removal was the simplest cholecystotomy I have as yet undertaken. The actual length of the gall-bladder when fresh was 15 centimetres (six inches).

The conditions of the gall-bladder which are most favourable for cholecystotomy are also those in which cholecystectomy is a fairly simple procedure, but there are conditions in which cholecystectomy is the only method available; among these must be included cancer. Occasionally primary cancer arising in the fundus of the gall-bladder will cause it to enlarge uniformly as in the case of mucocele, and I have seen a cancerous gall-bladder of the description large enough to reach below the level of the umbilicus. When opened it contained 86 nearly pure cholesterin calculi imbedded in a soft cancerous mass. More commonly a cancerous gall-bladder behaves to the liver in the manner depicted in Fig. 5—that is, the cancerous material permeates the adjacent hepatic tissue, so that the wall of the gall-bladder, the cancerous tissue, and the liver substance implicated by it form a conglomerate mass. Operations on sessile cancerous gall-bladders are attended by a very high mortality.

FIG. 5.

A cancerous calculous gall-bladder with the adjacent portion of the liver, in section to show the way in which cancer of the gall-bladder permeates the subjacent hepatic tissue. (Museum of St. Bartholomew's Hospital.)

The consideration of some of the chief variations in the relation of the gall-bladder to the liver is a necessary preliminary to a discussion on cholecystectomy, because it shows that to expose an enlarged gall-bladder through an incision in the abdominal wall, make an opening into it, and stitch the edges of the opening to the margins of the abdominal incision is a very simple proceeding, and from the point of view of surgical technique this is true; from the patient's standpoint it is often otherwise and a study of the operation returns of the general hospitals in London shows that cholecystotomy has a high risk (nearly 20 per cent.) and the inconveniences associated with it are many; they include persistent fistula, which may be biliary, indicating that the surgeon did not clear the main duct of concretions, or it may be a mucous fistula due to an impacted calculus in the cystic duct overlooked at the operation, or the discharge is purulent as a consequence of the sutures used to secure the gall-bladder to the wound acting as setons. Then there is the probability that the gall-bladder may manufacture more calculi (recrudescence), but this is not common. In regard to this the following observation of Kehr has, as Körte remarks, the value of an experiment: 12 cystotomised patients complained of pain, gastric trouble, and colic. The gall-bladder region was painful, the scar was swollen, and there was evidence of cholecystitis. In five cases Kehr punctured with a fine needle and withdrew turbid bile containing bacillus coli.

Another reason which has been urged for the removal of

the gall-bladder when inflamed and calculous is the fear that it may become cancerous. The extremely frequent association of calculi and cancer of the gall-bladder is the cause of this alarm, but I have made careful inquiries among the patients on whom I have performed cholecystotomy and have failed to find any justification for this fear. One case has been reported in which cancer supervened on cholecystotomy; it occurred in the practice of Mr. R. Lawford Knaggs. A woman, aged 69 years, had cholecystotomy performed in September, 1902, for suppurative calculous cholecystitis, and left the hospital with a fistula. A year later she complained of pain and swelling on the scar and she died about 20 months after the operation with cancer of the gall-bladder as proved in the laboratory. The details of the case are related by Moynihan and it is difficult to avoid coming to the conclusion that cancer was present in the gall-bladder at the time of the primary operation.

I was led to turn my attention to cholecystectomy some years ago, mainly from the difficulties which met me in removing stones from the cystic duct. In performing cholecystotomy it is easy enough to remove those free in the gall-bladder and to reduce a stone from the neck of the gall-bladder, but when a calculus is firmly impacted or, more correctly, encapsuled in the cystic duct it cannot be coaxed or forced into the gall-bladder, and it is necessary to incise the duct in order to recover the stone, otherwise the operation fails.

FIG. 6.

A gall-bladder removed from a woman, aged 52 years. A gall-stone is firmly encapsuled in the neck of the gall-bladder at its junction with the cystic duct. The small body on the gall-bladder is a supernumerary liver.

In looking over operation statistics it appears that the removal of stones from the common duct (choledochotomy) has the highest risk. In my practice I have had no trouble with this operation, but the excision of a stone from the cystic duct has terminated fatally in two instances. This determined me to alter my method and in cases where a stone is tightly impacted in the cystic duct I remove the gall-bladder and cystic duct with the impacted stone. The results were so good that I gradually came to perform cholecystectomy as a routine method in cholecystitis. The first case in which I performed cholecystectomy was upon a woman who had an external biliary fistula and a huge ovarian cyst; in the course of the ovariotomy the cyst was found adherent to, but not communicating with, the gall-bladder. She recovered from the ovariotomy and three months later I removed the fistulous gall-bladder; it contained many calculi. The patient quickly convalesced.

In performing cholecystectomy I adopt the following method. The patient, after being anæsthetised (the choice of anæsthetic I leave to a competent administrator), has a sand bag 16 inches in circumference and 24 inches in length placed under the back at the level of the liver. This is an improvement in technique we owe to Elliot. The abdomen is opened by a vertical incision through the right rectus muscle, near its outer border. This vertical incision affords excellent access to the gall-bladder and can be extended to any desired extent below, whilst an extension above can be effected by an incision running parallel with the costal arch and at an angle with the vertical incision. The gall-bladder is then examined and its condition noted. The bile-ducts are then traced out with the finger to ascertain their freedom from obstruction, &c. The field of operation is then shut off with sterilised gauze dabs, and the folds of peritoneum which bind the gall-bladder to the liver are divided on each side with scissors or scalpel. This enables the surgeon to enucleate the gall-bladder from its bed and follow it towards the portal fissure, where it narrows to the cystic duct. This duct is carefully examined and any impacted stone is gently squeezed into the gall-bladder, or if a calculus is tightly impacted it is left in the duct and this structure is seized with forceps beyond the calculus—that is, nearer the main duct. The detachment of the gall-bladder in this way is accompanied by some oozing from the liver, but the only vessel of any importance divided in this procedure is the artery of the gall-bladder (cystic branch from the gastro-duodenalis).

In dealing with the neck of the gall-bladder in this operation I have tried three methods. 1. In cases where the gall-bladder is enlarged secondarily to the impaction of a stone in the cystic duct the neck of the gall-bladder with the vessels may be secured with a silk ligature passed around it by means of an aneurysm needle and then secured; the gall-bladder is then detached from the liver from below upwards. The disadvantage of this method is the uncertainty of securing the cystic duct and if this is dilated the needle may transfix it, and the ligature in these circumstances will be useless. 2. When the surgeon has freed the gall-bladder from its connexion with the liver, then with forceps he picks away the softer tissues around the neck of the gall-bladder and the cystic duct until it is clearly exposed. With forceps he can seize the cystic duct and divide it in such a way as to leave a convenient piece suitable for the application of a thin silk ligature; the cystic artery can then be tied or squeezed with forceps. 3. The last method consists in detaching the gall-bladder from the liver and dividing its neck near the cystic duct and leaving the duct without a ligature. Any vessel that bleeds freely is ligatured or squeezed in the usual way. This mode is particularly indicated when the gall-bladder contains pus or is acutely inflamed. A wide drain is inserted and in the course of 24 hours the bile may be drained into a bottle. In the course of 10 or 12 days the bile ceases to flow along the tube and the wound quickly heals. With this method the surgeon has no trouble with a suppurating fistula and the patient is spared the tedium of daily dressings and watching for the appearance of a ligature.

In the operation of cholecystectomy there is usually bleeding from parts of the liver along the line of detachment of the gall-bladder. This may be so free as to need a suture here and there to bring the oozing surfaces into apposition. Commonly pressure from a dab wrung out of hot water arrests it. I have never had any trouble from this cause. In the case of a large mucocele (hydrops vesicæ felleæ) a thin strip of atrophied liver sometimes spreads over the gall-bladder. This may be excised by means of two converging incisions leaving a triangular patch of liver substance on the gall-bladder (cholecystectomy and partial hepatectomy). This manœuvre facilitates the obliteration of the fissure in the liver by means of ligature, an excellent method of effecting hæmostasis.

The results of cholecystectomy have been in my hands excellent. In simple cases of mucocele I have had patients up and walking about 12 days after the operation. In other conditions the convalescence depends on the drainage. Very septic cases may require five weeks, but in an ordinary way patients are out of bed in three weeks. The old patient on whom I have performed cholecystectomy was 76 years of age. She had acute calculous cholecystitis and the wall of the gall-bladder was perforated. She made an excellent recovery.

In order to ascertain the opinions held by surgeons as to the relative methods of dealing with diseases of the gall-bladder I obtained the statistics of gall-stone operations from the chief general hospitals in London for the year 1905. They show that during this period the operation of cholecystotomy was performed on 105 patients and of these

16 died. Cholecystectomy was performed 51 times, and of these patients nine died. These facts serve to show that the majority of surgeons prefer the simple method, although the risks are higher than in the more satisfactory operation in which the gall-bladder is completely removed. In preparing these statistics the cases in which the operations were performed for cancer of the gall-bladder were excluded. These should form a separate group. A perusal of periodical surgical literature indicates that surgeons are beginning to realise that cholecystectomy will soon be the preferable operation for dealing with calculous gall-bladders, especially as experience teaches that the removal of this organ has no detrimental effect, immediate or remote, upon the individual.

THE PATHOLOGY OF THE LIVER IN CARDIAC DISEASE AND ITS CLINICAL LESSONS.

BY REDCLIFFE N. SALAMAN, M.D. CANTAB.,
LATE DIRECTOR OF THE PATHOLOGICAL INSTITUTE, LONDON HOSPITAL.

(With Coloured Plate.)

THE conclusions arrived at in this paper are the result of extensive post-mortem observation and the detailed histological examination of over 60 cases, together with an analysis of their clinical histories. Before discussing the main issue it will be necessary to review some of the facts with regard to the morbid anatomy of the cardiac liver. The liver as seen on the post-mortem table presents great variations, and although "nutmeg" is a term applied to all, yet both to the naked eye and histologically they present vast differences. Thus, in some of the most extreme cases of mitral stenosis absolutely normal uncongested livers may be met with, a fact of great interest which I will deal with later. Or a full distended bleeding liver is found which on section presents the red and white chequered appearance spoken of as "nutmeg." Or again, the liver is small, firm, and hard, and on section has a most complex appearance quite distinct over most of its area from the ordinary "nutmeg," and yet here and there showing the characteristic features more or less clearly.

Histology.—The histology of the back pressure liver is a commonplace of pathology, and yet I think there are several points of importance which have either not been observed, or at any rate not chronicled, and on which I propose to enlarge.

Ordinary nutmeg.—In almost all the text-books it is pointed out that the contrast between the red centre and pale periphery of the lobule is intensified by the common or general presence of fat in the peripheral zone, a fact which is supposed to enhance its pallor. This is a curious misconception, for, with the exception of very young children's, not 1 in 30 nutmeg livers contains any fat in the periphery; on the other hand, the fat is seen to lie wholly in the central congested area, sometimes in enormous quantities. Even when the centre is destroyed or is replaced by fibrous tissue we see the fat still lying as near as it can get to the centre. Moreover, when the contrast between red centre and white periphery is most clear it does not at all imply the presence of fat in the periphery, for in such specimens there is often not a drop of fat in the periphery and only a very little fat in the centre. Moreover, when fat is present in large quantities it does not give a white but a yellow colour, which may readily be distinguished lying either in the centre or immediately encircling a red central vein. Fat, besides lying in the centres of lobules, surrounds sublobular veins. In children fat is normally present in large quantities throughout the lobule, but when such a liver has been subjected to a chronic back pressure it will be found to lie centrally. I have been able to observe that two processes take place in such livers: (1) an absorption of fat throughout the lobule; and (2) a fresh deposition of fat in the centre. If the case is one of quite recent origin where back pressure has existed for about 14 days or so there is seen a distinct peripheral zone of large fat globules, an intermediate zone almost free from fat, and a central zone filled with small globules. The character of the fat globules gives useful information as to the chronicity of the process—the cases of long-continued back pressure have invariably large globules, the recent ones small.

In livers where sudden and extreme back pressure has occurred great destruction of liver cells is seen, and here no fat is found; or again, in cases where there has been every reason clinically to suppose a maintained and fairly steady back pressure over a length of time terminated by a final complete breakdown of compensation ending in a few days in death, one finds the centre of the lobule the seat of great engorgement and often destruction, and in this mass of débris huge irregular clumps of fat occur; these latter doubtless represent the remnants of previous accumulations contained in the pre-existing fatty but living cells now destroyed. Briefly, fat is only found in living cells with good staining nuclei. It is a good example of infiltration as opposed to degeneration. In this connexion I have induced nutmeg livers in rabbits by bringing about collapse in one lung; in such circumstances fat is found in the liver lying only in the centre of the lobule. The normal rabbit liver contains no fat. I had hoped, if health had permitted, by continuing this line of research to demonstrate that the fat of nutmeg livers arises as an infiltration and not a degeneration.

Conditions which predispose to the accumulation of fat in the central zones.—The main factor is undoubtedly stasis, partial or complete. In dealing with the capillary contents I shall be able to show that one can from a histological examination state whether the liver has been subjected to a high or low back pressure and whether a large portion of the blood has not been to all intents and purposes stationary. The sequelæ of stasis can be seen to greatest advantage in tricuspid stenosis and in the six cases I have examined the accumulation of fat has been extreme in the centres of the lobules. The next factor is chronicity; thus the largest fat accumulations are seen in those livers where a steady back pressure has been maintained over many months or years. Mere venosity of the blood has little influence, as is shown by the two cases of congenital heart disease of my series, which, although in life presented the typical cœrulean features, possessed little or no fat and no signs of any chronic back pressure, although the livers were of a deep, almost blue-black, colour.

Changes in the fibrous tissue: the capsule.—In most back pressure livers the capsule is to some degree thickened, the extent varying generally in proportion to the degree of fibrosis within. The capsule of the large distended fatty nutmeg liver of a chronic and equable failure shows but a slight thickening. When, however, the capsule is notably thickened its fibrous structures will be seen to dip down and join with the thickened Glisson's capsules beneath, so that the peripheral three-quarters of an inch to one inch of liver tissue may be firm and inelastic. The normal elastic tissue of the capsule is, moreover, split up in all directions and may give rise to the appearance of increase.

Glisson's capsule.—In all cases of any chronicity some slight fibrosis will be found, but it very rarely assumes any great proportions and in those few cases where a very definite portal cirrhosis occurs it will be generally found that alcohol is a part cause. In only one of my series was it extensive.

The sublobular and hepatic veins.—Fibrosis around these veins is to be found in practically every case and sometimes in considerable quantity. The exceptions are: acute progressive endocarditis; occasional cases of tricuspid stenosis; and previously well-compensated cases that have recently failed and died.

Fibrosis about the central lobular vein and its capillaries.—In the normal liver (Fig. 1) it is seen that the central and sublobular veins are devoid of fibrous tissue, whilst that of Glisson's capsule is very delicate. In all cases of cardiac disease of any chronicity at all, with the exception of those cases of perfect compensation, a new formation of fibrous tissue takes place around the hepatic vein, radiates and creeps along the capillary walls till the whole of the centre of the lobule may be fibrotic. (See Figs. 2 and 3.) In extreme cases the return of blood from the liver is so seriously impeded as to cause all the symptoms of hepatic cirrhosis of the ordinary type. Careful histological examination shows that the new fibrous tissue is built by the endothelial cells of the capillary walls.

The cause of the fibrosis seen in the liver: the portal vessels.—The fibrosis here is never great and I think the obstruction to the flow of portal blood through the liver is enough to explain it. It may be that the altered state of the alimentary mucous membrane allows toxic bodies to reach the portal blood which may induce a fibrosis.

The hepatic veins.—The degree of fibrosis is here always

FIG. I.

FIG. II.

FIG. III.

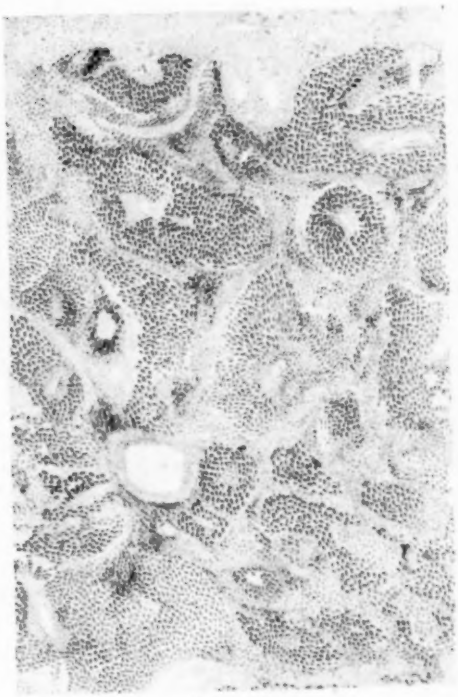


FIG. IV.

TO ILLUSTRATE DR. REDCLIFFE N. SALAMAN'S PAPER ON THE PATHOLOGY OF THE LIVER IN CARDIAC DISEASE.

commensurate with the degree and the chronicity of the back pressure.

The central vein and capillaries.—A slight degree of fibrosis no doubt follows prolonged distension and back pressure, but where the amount of fibrosis is excessive and assumes an importance in the general liver structure, then I think it can be clearly shown that another factor is at work. In all such cases it will be found that either there is evidence of present destruction of the central zones of the liver lobule or there are traces of past destruction, such as old blood pigment and small extravasations. The fibrous change is then simply a scarring process which heals the rent caused by some sudden almost explosive force acting on the delicate liver tissue. Such a force would be derived from the right ventricle in cases where paralysis of the auricle and total incompetence of the tricuspid were present, phenomena which undoubtedly occur and can be survived. Such hæmorrhages were absent in five out of six of my tricuspid cases.

The endothelial cells of the capillaries.—In most cases a marked swelling of the lining cells of the capillaries was seen; this was particularly obvious in cases of ulcerative endocarditis. In a few cases fat was seen in fine globules in the cells. In very many cases the swollen endothelial cells were shed into the capillary lumen from the walls. In all the more chronic cases the endothelial cells were, within the congested zones, increased in number; this increase was most definite in those cases where a central fibrosis either great or little was found. Such fibrosis begins in the capillary centre of the lobule and works outwards.

The contents of the capillaries.—Only in cases where the back pressure was quite recent or had produced hæmorrhage and destruction, as opposed to distension, were the capillaries filled with blood in which red and white cells bore the normal relation to each other. In the other cases the white cells were always increased; in some cases, notably those with tricuspid stenosis, the capillaries were lined with solid rows of leucocytes. Many of these leucocytes are degenerate and resemble transitional cells. I think it may be safely deduced that the presence of an excessive number of leucocytes in the capillaries is evidence of previous stasis or absence of a definite current. This evidence of a more or less stationary collection of blood in the liver is, I shall try to show, of considerable importance. I have noted that free endothelial cells are found in the capillaries; in some cases I think it is almost sure that certain other peculiar cells seen in the lumen are free liver cells.

Considering now the morbid anatomy and pathological histology of these livers together, we may divide all the livers met with in cases of cardiac disease into three classes. 1. *Engorged livers:* In this class would be placed those livers which, owing to a very recent heart failure such as may be seen in pneumonia and diphtheria, have become suddenly distended with blood. The rare cases of perfect compensation in heart disease associated with normal livers, only becoming congested at death, are also of this class. 2. *Nutmeg liver:* A liver which has undergone a prolonged course of back pressure of more or less equable degree, except perhaps for the final failure before death. Such liver shows more or less distension and generally abundant central fat, invariable increase of fibrous tissue about the hepatic veins (see Fig. 2), and traces of a central cirrhosis. Such were five out of six of the livers of tricuspid stenosis. In my opinion the livers of this type are the result of auricular incapacity and tricuspid incompetence rather than due to the continued influence of regurgitant blood at the pressure of the right ventricle. This type of liver may be very chronic but does not presumably approach nearer to Type 3 so long as the cardiac condition becomes no worse or the tricuspid valve stenoses. 3. *The cirrhotic nutmeg liver:* This is a liver in which fibrosis—portal, hepatic, and central, especially the latter two—is found strongly developed (see Fig. 3). Such livers, of which I have eight in my series, are all small and weigh from two and a half to three and a half pounds; they are generally pale and show a confused nutmeg appearance. The capsule is thickened and the surface is irregular, being thrown into coarse elevations. In all of these there is either histological or clinical evidence of the occurrence of one or more very severe attacks of failure several months or a year or two prior to death, failure which has produced destruction and subsequent scarring. Such livers naturally are to be found in varying degrees of perfection. These livers might be called the ventricular type, meaning that their ultimate cirrhotic condition has been brought about by damage done by exposure to such high pressure as the ventricle alone could produce. Two of the best examples of this type of liver were secondary to syphilitic myocarditis.

The liver of acute progressive endocarditis.—This is always of enormous size; histologically it is generally of Type 2 with recent destruction. In some cases it would appear as if a liver which had been on its way to the cirrhotic form is arrested in its progress, the fibrous tissue softened, and the liver allowed to swell up.

The relation of the liver to the heart in health and disease.—The position of the opening of the hepatic veins into the inferior vena cava is such that the direct line of a backward flow from the auricle would be along the line of the veins. The structure of the liver is such that it may aptly be compared to a sponge. Moreover, the liver capsule and fibrous structures contain a quite definite quantity of elastic tissue, which in union with the elasticity of the liver parenchyma would allow of expansion with subsequent recovery of shape, a recovery hastened by the pressure of the other abdominal organs. I wish to show that the liver acts physiologically as a safety valve to the heart, and that the various changes in structure undergone after prolonged back pressure modify that safety valve action and seriously alter the clinical course of the case. If a large number of post-mortem examinations of healthy persons dying by accident or violence be compared, it will be seen how immensely variable in the same sex and age period is the weight of the liver, e.g. :—

2 Years Old.

	Male.	Female.
Maximum	1 lb. 3 oz.	... ... 1 lb. 1 oz.
Minimum	0 lb. 10 oz.	... ... 0 lb. 10 oz.
Mean	1 lb. ¼ oz.	... ... 1 lb. 0 oz.

30 Years Old.

	Male.	Female.
Maximum	4 lb. 8 oz.	... ... 3 lb. 12 oz.
Minimum	3 lb. 1 oz.	... ... 3 lb. 0 oz.
Mean	3 lb. 12 oz.	... ... 3 lb. 6 oz.

Such variations are largely due to the quantity of blood contained in the liver—in other words, as to the manner of the death of the heart.

Again, if cases of diphtheria be examined, cases where death has been caused by the toxæmia and where the heart action has begun to be feeble, one will often meet with perfect specimens of the congested nutmeg liver. Similar appearances are seen in many cases of pneumonia. It is obvious that many have had such congested livers, and that with the amelioration of the heart condition the congestion has passed off. In such cases the liver has absorbed a certain quantity of blood from the right auricle directly and thus relieved the over-distended right heart.

In order to gain some idea of the quantities which may be thus withdrawn from the circulation, I have subjected a number of livers to pressures of 1 foot of water and 2 feet 3 inches respectively through the hepatic vein, the portal vein being ligatured. These pressures roughly represent the auricular and ventricular pressures of the right heart. Roughly, a normal liver will take its own volume of blood at 2 feet 3 inches, which is ventricular pressure, and one-half to three-quarters of its volume at 1 foot; such quantity in a small child is often three-quarters of a pint and in many adults is from three to four pints. If now such inflated liver be allowed to recoil, its own elasticity will carry it back to within one-third of its volume; doubtless in the body with the intra-abdominal pressure it would at once recover its original volume.

Let us now see what the three types of nutmeg livers do under these conditions. The results are shown in the annexed curves (Charts I. and II.).

Type 1.—I have illustrated by two examples, one in an adult with a rather large and somewhat fatty liver who, the subject of myocardial disease and diabetes, had by taking care of himself only experienced cardiac trouble a few days before his death. His liver showed microscopically no fibrosis whatever but was intensely engorged. Chart I. shows that this liver (S.H.), the volume of which was 4¼ pints, rose up to 6½ at 1 foot and 7 pints 2 ounces at 2 feet 3 inches—i.e., it absorbed 3 pints 7 ounces; on releasing the pressure it expelled half a pint. If now one compares this liver with a normal one, which was also somewhat fatty but contained no excess of blood and which at 2 feet 3 inches practically equalled in volume the engorged one, it will be seen that

CHART I.

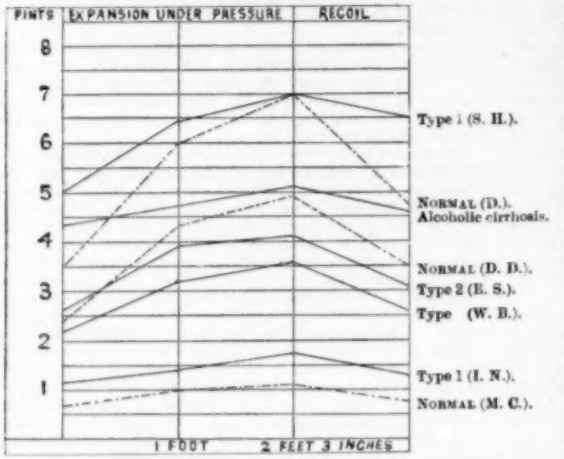


Diagram showing the increase in volume of livers when subjected to pressure through the portal vein of 1 foot and 2 feet 3 inches of water respectively. The broken lines represent normal livers of different initial volume. The continuous lines represent the changes in volume of livers in cases of cardiac disease.

owing to the liver having been incised a degree of accuracy corresponding to the other curves could not be obtained. Besides this liver I was able to examine histologically that of a similar case in which compensation had been complete till an acute attack of influenza suddenly killed the patient, who had been but eight months previously passed as sound into the police force, although the calcified and stiffened mitral orifice barely admitted the little finger. In this case, as in the first, the liver showed no changes which distinguished it from the normal. The kidneys were equally free from all evidence of back pressure. These two cases seem to show clearly that compensation may be of the most complete nature—that hypertrophy of heart muscle may restore the heart's relations to the other organs to the normal condition and that it is only when this purely cardiac compensation fails that the liver is called in to help keep the balance.

Type 2—that is, livers moderately fibrosed, especially about the hepatic veins—and which are the generally recognised nutmeg livers of the post-mortem room. Two examples are given in Charts I. and II. The lesser volume of blood which these livers will contain, especially between the two pressures of 1 foot and 2 feet 3 inches as compared with the normal, is very obvious, as is also their greatly reduced elasticity. In Chart II. these Type 2 livers are represented in terms of their own volume, when the increased recoil is at once noticed, a feature still more obvious in Type 3 and one, as we shall see, that is due to the fibrosis.

CHART II

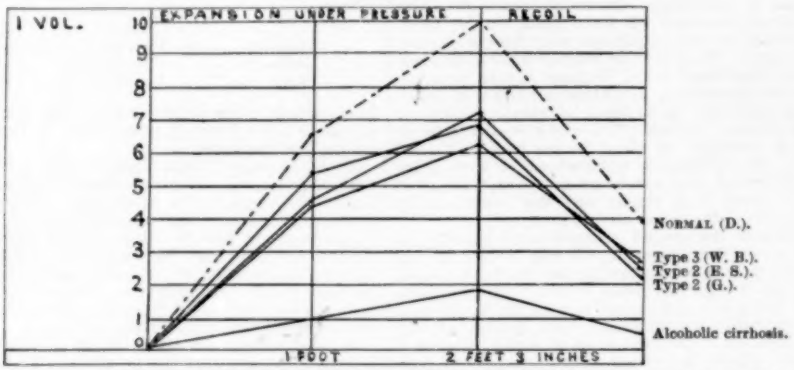


Diagram representing the changes shown in Chart I. in terms of the initial volume of the liver. Thus the normal liver (D.) doubled its volume under a pressure of 2 feet 3 inches of water.

the latter had an initial volume of 3½ pints; hence it may be deduced that there was dormant in the dead congested liver an amount of blood equivalent to about 1½ pints. Though I do not want to lay too much stress on these figures, obtained from the post-mortem room, they will give some idea of the amount of blood that may be, as it were, poured at the lowest pressure into the liver.

The second example of an engorged but otherwise normal liver is one in a child, aged two years, who died from diphtheria. Here I was unable to find a normal case which one could compare suitably at the 2 feet 3 inches pressure. One can here, perhaps, assume that inasmuch as the final volume of the engorged liver was 12 ounces above its initial volume and at the same pressure the normal liver (Chart I., M. C.) was only 10 ounces above its initial volume, the unengorged volume of the congested liver should have been in the same proportion to the initial volume of the normal one—that is, it should have been 18½ ounces instead of 22, or the dead liver contained an excess of about 4 ounces. In Chart II. I have represented the same thing in terms of the initial volume found post mortem.

In the normal liver the relative expansion and recoil are much greater than in the congested cases. An example of a thoroughly compensated case which suddenly died showed that its expansibility was absolutely normal, as was also its structure. I have omitted its curve in the diagrams because

Type 3.—Here at the outset one feature must be made clear—namely, these livers never on the post-mortem table present the same degree of congestion as do either Types 1 or 2; in fact, some contain hardly any excess of blood at all, which reminds one at once of the invariably anæmic condition of the hobnail liver, a fact in both cases dependent on the excess of fibrous tissue present. Moreover, these livers are always of small weight and volume—viz., from 2½ to a little over 3 pounds, so that when under pressure they do take up some blood it is but little in quantity. In Chart I. I submit a cardiac cirrhosis with a normal of the same initial volume and by way of comparison the values obtained from a hobnail alcoholic cirrhotic liver. The cirrhotic cardiac liver under 2 feet 3 inches takes up only 1¼ pints as compared to 2½ pints in the normal; both were from adults. The hobnail liver only absorbed three-quarters of a pint, though its initial volume was 2 pints greater than either normal or cardiac. These differences are seen to better advantage in Chart II., where, moreover, the power of recoil is seen to increase with the degree of fibrosis.

The following points may so far be deduced, viz.: (1) that under conditions of cardiac stress the liver will draw off a large volume of blood from the right auricle; (2) that after a time certain changes take place leading to fibrosis which very materially affects the distensibility of the liver; (3) that the fibrotic process, by increasing the force of the

liver's recoil, prevents the use of the latter as a reservoir in which blood may accumulate; (4) that in complete compensation there are no engorgement of the liver and no back pressure; and (5) that whilst the liver may be looked upon as a sponge-like safety valve to the heart, continued use of this safety-valve action leads to its own abolition.

It will now be necessary to show how these results are borne out by clinical observation.

Pain associated with the liver in heart disease.—The liver is directly or indirectly the cause of three kinds of pain, and these correspond fairly closely to the types of liver just described. We have: 1. *Referred superficial tenderness* from D.7—D.10 right side consequent on extreme distension of the liver. Dr. H. Head has observed two cases of this kind in the earliest stages of heart disease and failure. Such pain is usually, I believe, limited to livers of Type 1, and occasionally Type 2, but rarely or never Type 3. 2. *Tenderness of the liver itself on palpation.* This is the commonest pain and is found both in livers of Types 2 and 3, but more commonly in the former. 3. *The liver itself is painless but the whole abdominal surface is tender on deep pressure.* This condition is limited to Type 3 and is due to distension from ascites and peritoneal irritation.

The onset of œdema in cardiac failure.—It is exceptional in the hospital to have the opportunity of observing the commencement of failure, but where such observations are made, or questions asked later, it will be found that the first symptoms have been referred to the heart itself, and only after these have existed some days does the œdema of the feet occur. In cases of first failure it can sometimes be elicited from the patient that not only was the œdema preceded by the pure cardiac discomfort but also by a pain and tenderness in the right side. I have been fortunate enough to obtain two such cases from the wards of Dr. Head, who himself observed the presence of superficial tenderness over the right abdomen before the œdema had appeared. As I have already pointed out, the presence of this referred pain is an indication of tension in the liver and in both these cases the enlarged liver was felt. In one case after the liver enlargement was definitely established œdema of the legs appeared and during the treatment it was definitely observed that the liver decreased in size first and that then the œdema went. The other case went from bad to worse and died from malignant endocarditis. In those cases of pneumonia and diphtheria where engorgement of the liver occurs œdema is either not met with or appears during the last hours only.

The meaning of these observations is clear. With the onset of cardiac distress the liver has come to the rescue and has enlarged up to its physiological limits without giving any signs; then as enlargement exceeds this limit referred pain appears. When the blood drawn off in the now fully distended liver is insufficient to relieve the heart failure the blood is thrown, as it were, further back in the inferior vena cava and œdema of the feet is the natural consequence. Relieve the heart, allow the liver to disgorge some of its blood and return to the limits of its physiological safety-valve action, and the œdema vanishes.

In cases of chronic heart disease, where compensation, if established, is on but a narrow basis, or in those cases where a more or less continuous failure exists during the last year or so of life, œdema of the feet is the most faithful sign of the degree of compensation. Thus a patient will be free of it in bed and it will appear with the first attempt to get up, or the case leaves hospital with the narrowest margin of cardiac response and the return to the drudgery of home work is met with the more or less immediate appearance of œdema. In such cases œdema may be the first thing observed by the patient. In these cases we have livers of the Types 2 and 3 to consider. If the liver be of Type 2 and the case is temporarily compensated the onset of œdema will be subsequent to a further enlargement of the liver. This enlargement may escape observation, but the local tenderness of the liver as opposed to superficial pain will be always found if looked for. As the liver in Types 2 and 3 is, on the one hand, already more or less engorged, and on the other is less capable of extension than either that of Type 1 or the normal, it cannot help the heart very much, hence œdema appears very shortly after the onset of the failure. If, now, the patient is in the unfortunate position of possessing a liver of Type 3, a liver hardly capable of response to cardiac necessity, unable to harbour any volume of blood, the whole weight of the back pressure will fall along the inferior vena cava and œdema will be rapid in its formation and abundant in amount. In six out of my eight cases of Type 3 the œdema was extreme; in the remaining two ascites was the cardinal symptom and not much œdema was present.

Ascites in cardiac disease.—Ascites in heart disease allows itself, with less sacrifice to candour than is usual in most generalisations, to be divided into two distinct classes: (1) the ascites of acute back pressure; and (2) the ascites of chronic back pressure.

The first type of ascites is invariably correlated with livers of Type 1, or less commonly with cases of sudden relapse associated with Type 2. In either case it is characterised by being (1) small in quantity, averaging one pint or in one exceptional case four pints; (2) it is of a high colour and often blood-stained; (3) the peritoneum of the gut is opaque with engorged veins marked on it if the liver is of Type 2, or of its normal semi-transparency, but with engorged veins if the liver is of Type 1; and (4) in all cases there will have been œdema at the time of death and in nine out of ten cases it will be of such amount as to be found post mortem. In this type meagre ascites only appears after the utmost expansion of the liver has taken place and that this failing entirely to relieve congestion the pressure has been transmitted through into the portal vein and its tributaries, some of the fluid coming from the intestinal peritoneum and some from the liver capsule.

Ascites of the second type.—This is characterised by: (1) being very large in amount, often requiring tapping; (2) of a clear yellow colour; (3) the peritoneum of the intestines is invariably opaque and thick, peritoneal adhesions are very common (the veins may not be engorged to any great degree); and (4) the liver is invariably of the cirrhotic type (Type 3). Ascites associated with this condition of liver is not necessarily the result of an increase in back pressure; it may and does often occur whilst the heart is compensated, so that some cases, notably one of mine, spent the last year of his life being tapped and ended it with septic peritonitis, the heart being compensated the while. The effusion of fluid is in this type comparable to that in ordinary cirrhosis of liver, due to the difficulty experienced by the portal blood in making its way through the fibrosed organ, a difficulty that may be doubtless increased by some degree of back pressure. That the ascites of this type is due primarily to the fibrosis and difficulty of return of the portal blood is, I think, shown by those cases of prolonged heart failure where œdema and ascites co-exist; by means of drugs and rest the œdema goes, the heart is compensated, but the ascites persists or increases till death.

Absence of ascites in ulcerative endocarditis.—It may be accepted almost as an axiom that in ulcerative endocarditis ascites is not met with. I think the explanation is to be found in the condition of the liver. In every case I have examined of ulcerative endocarditis (about 50), the liver has been of Types 1 or 2, of enormous size and heavily engorged; moreover, the spleen is always of great proportions, and between the two of them so great a quantity of blood is, as it were, held up as to prevent any high venous pressure, whilst at the same time no fibrotic processes occur owing to the deterrent action of the toxins. Indeed, I think I have found evidence that fibrous tissue previously laid down may be re-absorbed in the livers of ulcerative endocarditis.

In conclusion, I should like to make it clear that while I think the liver is a factor of the greatest importance in the formation and course of œdema and ascites in cardiac disease, I do not assert that it is the sole factor, nor that the mechanical explanation I have deduced from its changes is the ultimate explanation of the phenomena.

EXPLANATION OF PLATE.

Fig. 1.—Section of normal adult liver. CV, Central venous area of lobule; SV, sublobular vein.

Fig. 2.—Section of a liver of Type 2. The distinct fibrous ring round the hepatic veins and their tributaries is characteristic. Note the radiation of fibrous tissue from the veins into the surrounding parenchyma.

Fig. 3.—Section of liver of Type 3. The central areas of the lobules are filled by a growth of fibrous tissue, whilst the fibrous tissue about both hepatic and portal veins is increased; the ordinary arrangement of liver tissue is thus obscured.

Fig. 4.—Section of liver of Type 3, in which the capsule is much thickened. The section shows fat (red) definitely situated towards the centres of the lobules and around the sublobular veins. It also shows a fibrosis most developed around the hepatic veins but not absent from Glisson's capsule. Note the fat-free peripheral zones in the hepatic lobules.

Barley, Herts.

INTRAPERITONEAL BLEEDING FROM A UTERINE FIBROID, WITH ACUTE DISTENSION OF THE ABDOMEN;

ABDOMINAL SECTION; REMOVAL OF THE FIBROID; RECOVERY.

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THE patient, a single woman, aged 48 years, who up to Nov. 18th, 1905, was in the enjoyment of her usual health, was seized at 3 30 in the afternoon with a sudden pain in the abdomen, which she was unable to localise exactly. The pain was accompanied by profuse sweating. Vomiting supervened within a few minutes and a free action of the bowels occurred. When I saw the patient at 10.30 P.M. on the same day she was obviously very ill and suffering from collapse. The abdomen was very sluggish in its movement all over and was a good deal distended. It was somewhat tender to palpation. There was practically no liver dulness. Resonance extended almost to the nipples on both sides. Distended coils were partially visible through the abdominal walls. No further sickness had occurred. No food had been taken since the commencement of the attack. The pulse rate was 80 and the temperature, which had been normal immediately after the first seizure, had fallen to 96° F. Mr. L. H. McGavin and Dr S. Beauchamp saw her with me in consultation, and Dr. H. D. Rolleston had seen her in the interval. We came to the conclusion that the condition was one most probably due to the rupture of a gastric or more probably of a duodenal ulcer and that immediate exploration of the abdomen was urgently demanded. The patient was known to have suffered from a fibroid of the uterus, but it was difficult to see how that condition could have in any way contributed to bring about the present grave condition of affairs, as there was no indication which led us to suspect pelvic trouble.

Mr. T. G. Burns administered the anæsthetic and Mr. McGavin and Dr. Beauchamp assisted me. Dr. Rolleston was present at the operation. An incision was made slightly to the right of the middle line, beginning at the level of the umbilicus and extending downwards. As soon as the peritoneum was opened an enormously distended stomach came into view but no gas issued from the peritoneal cavity, nor were there any gastric or intestinal contents free in the peritoneal cavity. On inserting the hand into the lower part of the wound some blood was discovered which seemed to come from the pelvis. The incision was accordingly continued downwards. A subperitoneal fibroid of considerable size was found to be attached to the back of the uterus and to be wedged against the promontory of the sacrum. It was disengaged without any trouble and brought up to the surface of the wound. An artery and vein situated on the surface of the fibroid were bleeding and the lower part of the abdomen and the pelvis were full of recent blood. As far as the exigencies of the moment permitted an attempt was made to determine the cause of the bleeding. Its immediate cause seemed to be due to ulceration of the surface of the fibroid owing to its pressure against the promontory of the sacrum. The fibroid itself was pedunculated and was removed without difficulty and the pedicle secured by transfixion in the usual way. Blood was so far as possible sponged out and the edges of the abdominal wound were secured by suture. The patient was put back to bed as speedily as possible and a saline enema with an ounce of brandy was administered by the rectum.

When the patient was seen between 9 and 10 o'clock on the following morning she was decidedly better, she had brought up a considerable quantity of flatus from the stomach, and some had passed as well by the rectal tube. The temperature had risen to 99° and the pulse to just over 100. Later in the day the flatus seemed to have reaccumulated and she was a good deal distressed in consequence. She vomited several times during the day. A few sips of hot water were given by the mouth. On Nov. 20th she was seen several times during the day. Several turpentine enemata were administered and she vomited on several occasions. Nothing seemed to relieve the distension. At 11 P.M. I decided after consultation with Mr. McGavin and Dr. Beauchamp that the patient's only chance lay in performing an enterotomy so as to afford a vent for the pent-up flatus. A small incision was accordingly made on the left side of the abdomen and a largely distended piece of small intestine seized, brought up to the surface, attached to the edges of the wound, and opened. The relief was considerable and immediate, and when the patient came round from the anæsthetic she stated that she felt better. On the morning of the 21st the general condition was distinctly improved and green bile was coming away from the intestinal wound. Later in the day the bowels acted and the general improvement was maintained. The flatulence was much diminished. On the 22nd, though the flatulent distension of the abdomen was distinctly less and the patient in consequence much more comfortable, fluid food was beginning to pass in considerable quantities by the intestinal wound, which was evidently situated but a short distance from the stomach. There was therefore but little chance of absorption of any of the food which was administered by the mouth before it was voided into the dressings. As the patient was beginning to resent the enemata and took no interest in her food her condition was again becoming grave. She complained of feeling very low and weary and was very restless. On the 23rd there was a great deal of discharge of food from the wound in the earlier part of the day. In the evening it was evident that the patient was growing weaker and losing ground owing to the difficulty of feeding her. In these circumstances it was decided to collect the half digested food which issued from the intestinal wound and reinject it into the lower part of the intestine. This plan was first carried into effect on the 24th. The patient was very weak and exhausted all day. Soon after 8 A.M. on the 25th the patient's pulse was so feeble and her general condition so serious that Mr. McGavin transfused two pints of saline solution into the right arm and with very beneficial result. A rigor occurred in the course of the morning, due probably to the formation of pus in the first wound, which had become infected from the intestine. During the whole of the time between Nov. 25th and Dec. 2nd the patient's condition was one of extreme gravity owing to the great weakness and restlessness which prevailed. There was so much difficulty of respiration that oxygen was administered on three or four occasions. Mr. McGavin was unremitting in his attempts to return the intestinal contents into the lower section of the bowel, and it was mainly owing to the care with which he personally carried out this feeding process that so successful a result was eventually secured.

The method which was employed was as follows. The intestinal fluid was allowed to run over the edge of the wound and was, so far as possible, collected in a glass dish. When from half a pint to a pint had been collected it was carefully warmed up to the temperature of the body and by means of a soft rubber œsophageal tube replaced in the lower end of the bowel. This was by no means easy to effect and could only be accomplished by taking advantage of the peristaltic action of the bowel, which seemed to enable it to swallow a few inches of the rubber tube, and thus facilitated the ingestion of the food. One or two points in connexion with this administration were of extreme interest as well as of great practical importance. It was quite useless to lubricate the tube with olive oil, soap and water, plain water, &c., but it was dipped in the intestinal juice which was about to be reinjected, the bowel gradually began first to undergo some slight muscular contraction as if it were making the attempt to taste a dainty morsel, and then gradually the process of swallowing the tube commenced and continued until eight inches had disappeared into the interior of the bowel. This appeared to be sufficient to satisfy the demands of the bowel and no further passage took place. The fluid was taken up at a very slow rate; on one occasion 21 ounces took one and three-quarter hours to administer, but it was quite impossible to reintroduce the intestinal contents excepting at the rate which the bowel demanded. Any increase in speed at once insured its rejection and the lower rate of progress had to be resumed. During the time that food was thus administered advantage was taken of the intestinal fistula for the administration of drugs. If any attempt was made to introduce them in their pure form they were at once rejected, but they were tolerated without any difficulty when they were mixed with the intestinal contents. Food was thus administered every three or four hours on the average. To some extent this depended on the feelings of the patient, and was also partly determined by the amount which had been collected. Provided, however, it was administered only at the rate which the experience of some days indicated the lower bowel swallowed and absorbed it, and the patient not only took considerable

interest in the process but sustained great benefit both immediate and remote from this novel method of feeding. On Dec. 2nd resection of the gut at the site of the fistulous opening was performed with Mr. McGavin's assistance, and Mr. A. W. Mayo Robson was present. The bowel, after having been detached from the surrounding skin, which was irritable and eczematous, was pulled out of the wound, due precaution being taken to protect the peritoneum so far as possible from infection. About three inches of the gut, in which, of course, the fistulous opening was included, having been secured by clamps, were removed and an end-to-end suture performed, the mucous membrane being lightly united with catgut and the other coats brought together by a continuous Lembert suture of fine silk. The wound in the abdominal wall was then closed. On the 4th the general condition of the patient was considerably improved. She took about eight ounces of gruel by the mouth and the bowels acted naturally. On the 12th the general condition, though better than before the last operation, was still one that gave rise to much anxiety, and Mr. Mayo Robson again saw the patient in consultation. There seemed no indication for any change in the line of treatment. A good deal of pus was coming through the first operation wound, apparently from the lower part of the pelvis, but there seemed to be a free exit for it. From the 13th to the 17th the patient complained of a good deal of pain in the region of the pelvis, especially just before the bowels were opened. This pain was relieved generally by hot fomentations placed over the lower part of the abdomen. From the 18th to the 29th the temperature was somewhat irregular and the abdominal wound was sluggish in healing. Combined with these conditions the patient's progress was unsatisfactory. Some septic absorption appeared to be a possible explanation of this state of affairs. Sir A. E. Wright saw the patient in consultation and examined her blood. He came to the conclusion that the blood was a little too easily coagulable and hence the opsonins were unable to be conveyed to the surface of the wound where they could destroy the pus which was being secreted. He suggested the administration of some citric acid. A few days after his visit a large quantity of pus, perhaps half a pint, was passed with the urine, due apparently to an abscess which had found its way into the bladder. The patient was much relieved by this and her general condition at once improved. Only a few traces of pus were passed with the urine during the next four days and after this period it completely ceased. A very marked improvement had taken place by the 30th. The general condition was much improved and the temperature had come down practically to normal. The patient was able to be got out of bed to have her bed made for the first time since the commencement of her illness. On the 31st the urine was slightly foul but there was no visible pus. The bladder was washed out and urotropine was administered with beneficial result during the next few days. On Jan. 6th, 1906, the patient was again got out of bed and she felt much stronger than she had done during the previous week. On the 13th she was, though still very weak, practically convalescent, with the exception of the fact that the first abdominal wound was not completely healed. There was also a little œdema of the left leg. On Feb. 6th she was able to leave London. In November she was in excellent health and could do as much as she had been able to do before her illness.

The rarity of cases of uterine fibroid in which the hæmorrhage has been so severe as to cause collapse and dangerous symptoms makes it desirable that such cases when they do occur should be carefully recorded. A case is related by Matthews Duncan in which bleeding occurred per vaginam and caused death,[1] and a similar case is recorded by Jamin and Pollosson.[2] But such cases, though sometimes confounded with those in which bleeding has taken place into the peritoneum, must be carefully distinguished from them. A fatal case of this latter condition is described by Stein[3] and various references are included in his paper which has evidently been written after much careful research. He states that the condition is referred to generally by Schauta and Rokitansky, though no actual details support their statements.[4] Soller[5] describes another case in which the patient was seized with acute symptoms dependent presumably upon bleeding into the peritoneum from a fibroid, but as the patient eventually recovered without any operation being performed there can be no absolute certainty that this was really the case. Another fatal case is related by Gusserow.[6] The only other case besides the one I am now relating which has been saved by operation is one referred to in Stein's paper.[7] It appears to have been communicated to him by Pollosson[8] and to have been published in a Lyons thesis which I have been so far unable to obtain a sight of. Lewers published a case[9] in which laceration of the surface occurred in a fibro-cystic tumour of the uterus, and in which he states that had not operation happened to occur shortly after the laceration the patient would have died, but the operation was apparently not performed for the purpose of saving the patient from dying from hæmorrhage. In the discussion which followed on this paper Dr. Herbert R. Spencer stated that he had seen a case of extensive intraperitoneal hæmorrhage owing to the bursting of a vein on the surface of a fibroid, but I have been unable to find any further particulars of this case. With the exception of this case, which apparently resembled the one that I have described, my own seems to be the only one in which any evidence was obtainable of the condition which was the immediate cause of the bleeding. In all other cases it was merely a matter of speculation.

Harley-street, W.

[1] Hæmorrhage from Fibrous Tumours of the Uterus; their Nature, Source, and Surgical Treatment, Edinburgh Medical Journal, vol. xii., p. 633.

[2] Cystofibrome de l'Utérus, Hémorragie Grave, Rupture d'un Sinus Veineux dans la Cavité Utérine, Lyon Médical, 1905, p. 159.

[3] Uber tödliche intraperitoneale Blutungen bei Uterusmyom, Monatsschrift für Geburtshülfe und Gynäkologie, 1905, Band xxii. S. 637.

[4] Schauta: Lehrbuch der gesammten Gynäkologie, 1896, S. 360; Rokitansky: Lehrbuch der Pathologischen Anatomie, 1861, Band iii., S. 484.

[5] Hématocèle consécutive à un Fibrome Utérin et survenant subitement avec des Symptômes Algus, Mémoires et Comptes Rendus de la Société des Sciences Médicales de Lyon, 1882, vol. xxii., pp. 85, 86

[6] Gusserow und Zweifel: Lehrbuch der Geburtshülfe, IV. Auflage. S. 235.

[7] Op. cit.

[8] Des Hémorragies Intrapéritonéales dans les Cas de Fibromes, Utérins, Thèse de Lyon, 1904.

[9] Transactions of the Obstetrical Society of London, 1905, vol. xlvii., p. 261.

[*] The superior figures refer to the bibliography at the end of the article.

HYPERPLASTIC TUBERCULOUS PERICOLITIS.*

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COLITIS has occupied much attention lately in the surgical world and "pericolitis" has formed the subject of recent articles by Rolleston[1] and D'Arcy Power.[2] The following three cases illustrate a form of chronic pericolitis due to a peculiar infection with the tubercle bacillus, to which form of disease very little attention has been paid in England, though probably many English pathologists are familiar enough with it. That its recognition by the surgeon is of considerable importance can hardly be denied, seeing that it is usually mistaken for malignant disease of the colon and treated as such. This disease also probably accounts for those cases of colonic tumour in which a hopeless prognosis has been given and the patient has survived for many years and perhaps lost all sign of disease.

Though many cases of "hyperplastic tuberculosis" of the gut have been published in foreign literature since 1890, yet, so far as I can discover, only four cases have as yet been published of the "subserous" group to which these three cases belong, as opposed to the "submucous" group. Case 3 is the only case under ten years of age so far described. Rolleston in his edition of Nothnagel's "Pathology" dismisses the subject in a few lines and quotes Pal, who describes eight cases of "primary *submucous* circumscribed colitis sometimes without ulceration" and remarks that "for the present a decision as to the true anatomy and pathogenesis of these lesions must be deferred until more post-mortem data or observations made during laparotomies on such cases are available."

These then are the reasons for publishing these cases and calling attention again to the existence of this disease. The only case I can find reported in English journals is that by Page.[3] Cases of tuberculosis of the cæcum reported by Sainsbury[10] and Lediard[5] do not belong to this group. A case of sarcoma of the cæcum published by Gilford[7]

probably belongs to this group. A case published by Hatch[17] belongs to the ordinary form. A "remarkable case by Nothnagel" is the only reference to this condition to be found in Treves's book on "Intestinal Obstruction."[18] These cases help to establish the following points. First, that there arises a peculiar form of localised chronic hyperplastic inflammation in the submucous, muscular, and subserous coats of the bowel, which may lead to intestinal obstruction and its consequences, and which affects the mucous and serous layers to but a small extent. Secondly, that this is in all probability due to a localised infection of the wall of the gut with an attenuated form of the tubercle bacillus. Thirdly, that this form of inflammation is very liable to be mistaken for carcinoma or sarcoma either at operation or at necropsy. Fourthly, that by careful examination with the naked eye this form of disease can often be distinguished at the operation from a malignant growth, when once it is realised that such disease exists and the appearance it presents is borne in mind. Fifthly, that it can always be recognised with certainty by microscopical examination, which will prove of advantage in prognosis and treatment.

CASE 1.—The patient, a male, aged 49 years, was admitted to the London Hospital on April 2nd, 1906, under the care of Mr. J. Hutchinson, jun. The illness began about nine weeks before with pain in the epigastrium and hypogastrium, steadily increasing in severity but with intervals of complete freedom. Three days before admission there was difficulty in micturition and a catheter was passed. There was no history of gonorrhœa. There was some pyrexia. A swelling was felt in the hypogastrium resembling an enlarged bladder and reaching to the umbilicus, but it was dull at the edges and resonant in the centre. By rectum an indefinite swelling could be felt in the recto-vesical pouch and slight œdema of the rectal mucous membrane. A catheter drew off five ounces of urine which contained nothing of note. On April 4th the peritoneal cavity was explored by a median incision below the umbilicus. The swelling proved to be a large abscess surrounding the sigmoid flexure, which was said to be the subject of a carcinomatous ulcer with perforation. The patient died in four hours with a subnormal temperature and a pulse-rate of 170 to the minute.

Necropsy (in this report only essential details are inserted).—There were no signs of secondary deposits anywhere and none of tuberculosis. The omentum was adherent to the anterior abdominal wall, completely shutting off the upper part of the peritoneal cavity. The small gut was distended and covered by a fine layer of fibrin, and showed several green spots towards the lower end. The mesentery was œdematous and contained enlarged œdematous glands. The cæcum was greatly distended with gas and fluid and the transverse and descending colon were in a state of contraction. The descending colon passed into a large hard mass which filled the pelvis and fixed the bladder down beneath the pubes. The pelvis contained foul yellow pus. The surface of the mass was acutely engorged and showed several green patches, but no gross perforation of the bowel could be found. The rectum was felt to emerge from the mass below. The sigmoid flexure was surrounded by a mass of new tissue which pressed into the walls of the gut and diminished its lumen. The narrowed portion was about six inches long and just admitted a finger. The walls of the gut at this part were about three-quarters of an inch thick, the increase being almost entirely in the subperitoneal coat which was three-eighths of an inch thick, pale, hyaline, hard; in fact, almost like cartilage on section. The muscle tissue was thickened, a quarter of an inch thick, but the submucous coat was not thickened to the naked eye. The mucous membrane was smooth, healthy, and not ulcerated. The lymphatic glands lying in the fat behind the gut contained many ragged cavities full of yellow stinking pus, and lined by green granulations which suggested a gangrenous inflammation. These glands had given rise to the peritonitis. Parts of the glands which were not broken down consisted of hyaline, cartilaginous-looking stroma surrounding patches of fatty tissue. There was another small unopened abscess in the recto-vesical pouch well walled off. No ulcer could be found in the rectum or sigmoid flexure.

The explanation of this case seems to be that there had been a tuberculous infection of the subperitoneal tissue of the rectum and that the inflammation had spread from there up along the subperitoneal coat of the sigmoid flexure. Later, secondary infection and suppuration had occurred, leading to peritonitis and death. The inflammatory tissue was so firm that it suggested malignant disease to the touch. But examination of the cross-section of the gut wall showed at once that the new tissue *was not beneath the mucous membrane* as in malignant disease (see Fig. 1), but *outside* the muscular coat beneath the peritoneum. This point served to distinguish between the two with the naked eye at the necropsy.

Microscopic appearances.—Many sections were cut but all showed very similar appearances. In the section of the wall selected for description the subperitoneal coat was three-eighths of an inch thick, the muscular coat a quarter of an inch, and the two inner coats rather less than one-eighth of an inch. The glands of the mucous layer appeared normal, the basement membrane thickened but well defined, and there was no sign of down-growth of epithelium. In the submucous layer the walls of the blood-vessels were thickened and the fibrillar connective tissue network was slightly increased, with increase in the nuclei of fibroblasts and round cells. The muscle coat was thickened, apparently from multiplication of the muscle cells. The subperitoneal coat presented the most characteristic changes. It was three-eighths of an inch thick, consisting of a groundwork of densely matted fibrillæ which stained a deep red with van Giesen's stain and which interlaced in various directions. The individual fibrillæ were thick and swollen. Between the fibrillæ were a large number of nuclei, chiefly ovoid or rod shaped, staining pale blue with hæmatin and characteristic of "fibroblasts." Small round cells with round deeply-stained nuclei were present in moderate numbers and a few larger endothelioid cells with well-stained nuclei. Numbers of freshly formed capillary blood-vessels lined by a single layer of endothelioid cells were seen

FIG. 1.

The sigmoid flexure laid open.

FIG. 2.

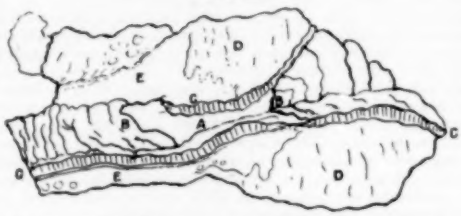

Diagram to explain Fig. 1.: A. Narrowed lumen of gut—ulcerated. B, Edge of ulcer. C. Muscle coat. D, Fatty areas. E, Areas of dense translucent fibrous tissue.

running for the most part at right angles to the plane of the surface of the gut. The larger blood-vessels showed great increase in their outer coats, which fused with the newly-formed fibrillar tissue. Just under the peritoneum there was an area full of vacuoles showing that the fat cells had also undergone multiplication. These vacuolated areas were traversed by strands of thickened fibrillar tissue. Immediately beneath the peritoneum was a thin layer of fibrillar tissue without fat cells. Clearly the microscopic picture was one of slowly organising or "adult" granulation and fatty tissue confined almost entirely to the subperitoneal coat of the gut and suggested that a mild poison had been acting on this layer.

CASE 2.—Male, aged 57 years, brought in dead in February, 1906.

Necropsy.—The body was fat and well nourished, the organs showing signs of beer-drinking. There was an old tuberculous scar at the apex of the right lung but no other signs of tuberculosis. Examination of the abdomen showed the small gut smooth and healthy, the cæcum in a state of acute dilatation, its wall œdematous and infiltrated with hæmorrhages, and its surface covered with a delicate layer of fibrin. The rest of the colon as far as the sigmoid flexure was in a state of distension but did not show such extensive and advanced inflammatory change. The lower end of the sigmoid flexure was firmly bound down amidst a mass of tissue of new formation, which appeared to consist of a mixture of fat and firm tissue resembling hyaline cartilage in colour and consistency, though not quite so firm. The lumen of the gut was narrowed considerably for some two or three inches at this point. The rectum and anus were free. The mesenteric glands showed no signs of secondary deposits. The mass was labelled carcinoma of the sigmoid in the notes and thrown aside, the cause of death being acute dilatation of the cæcum. Further examination of the

specimen showed that the mucous membrane was smooth throughout and presented no trace of ulceration, a point very much against carcinoma. There were two or three large purple polypoid masses at the point of stricture, which had evidently led to the final complete obstruction by becoming impacted in the stricture and strangulated. The submucous layer was absolutely unaltered to the naked eye, a second point against carcinoma. The muscle coats showed up well and above the stricture were hypertrophied, but they were also thickened outside the stricture itself. The subperitoneal coat had undergone a remarkable change and measured from half an inch up to two or three inches in thickness. The new tissue consisted partly of translucent bluish homogeneous material which cut like cartilage and was very hard to the touch, and partly of areas of yellow fatty tissue which were intermixed with the firmer tissue and passed indefinitely into them. The peritoneal surface was smooth; there was increase in the appendices epiploicæ. At first sight the condition was considered to be an aberrant form of neoplasm. It differed, however, from carcinoma in that: (1) the mucous membrane was intact; (2) there was no naked-eye sign of submucous thickening and infiltration; (3) the new tissue was entirely subperitoneal; and (4) the new tissue was not yellowish white and faintly granular on section as in malignant disease, but was translucent, almost cartilaginous, and contained areas of well-formed fatty tissue (not fatty degeneration).

Microscopic appearances.—These were precisely similar to those in Case 1 and need not therefore be described in such detail. The subperitoneal coat was immensely thickened. The blood-vessels showed great thickening of the middle and outer coats. The outer coat consisted of a dense mass of new fibrillar tissue and fibroblasts and passed off in strands into the connective tissue of the part. This contained many vacuolated areas showing that the fat cells had multiplied. In between these were other areas formed by dense bundles of new white fibrillæ containing in their meshes spindle cells with clear ovoid nuclei—fibroblasts,—small round cells with round nuclei, a few polymorphonuclear leucocytes, and clear flattened cells with small round nuclei, endothelial or plasma cells. There were also a large number of freshly formed capillary blood-vessels in this fibrillar network. The whole appearance was that of excessive overgrowth of all the constituents of the subperitoneal coat caused by some mild irritant or poison, as in the first case. The muscle coat showed considerable overgrowth of the interstitial connective tissue in this case. The submucous coat exhibited some increase in the connective tissue network and the vessels were thickened; but again the increase was small compared to that in the subperitoneal coat and could hardly be seen with the naked eye. The basement membrane was intact and the glands of the mucous membrane appeared healthy and showed no tendency to invade the underlying tissues.

CASE 3.—The patient, a female, aged seven years, was in the London Hospital from May to August, 1906, under the care of Mr. T. H. Openshaw. The following is a summary of the history. She had had measles three years previously; a vaginal discharge followed due to an ulcer in the vagina. One year previously a fæcal fistula appeared in the vagina which grew steadily worse. Various operations were performed with the intention of closing the fistula, but with no success, and the child grew very anæmic and wasted. There were no symptoms to point to abdominal disease. In July the peritoneal cavity was opened in the left iliac region as it was intended to make a temporary artificial anus to keep the vagina clean and induce healing. The sigmoid flexure was sought for but was found to be converted into a firm indefinite mass about six inches long. The peritoneal covering was smooth enough, but the subperitoneal fat and appendices epiploicæ were greatly thickened and the gut appeared buried in a mass of fat. Several large appendices were winding round to the front of the gut, and were adherent to one another at their extremities so as to embrace the gut completely. One was cut across and bled furiously, for the whole mass was exceedingly vascular. On palpation the tumour was of extreme hardness and a diagnosis of malignant growth of the sigmoid flexure was made. The whole growth was stitched outside on to the belly wall and an artificial anus was established. Some days later the growth was cut away completely. The lumen of the portion of gut removed was opened and there was seen to be a stricture two and a half inches long which would admit the tip of the little finger (see Figs.). The mucous membrane had disappeared in this position, exposing the submucous coat. Above and below this point the mucous membrane appeared healthy. There was no thickening of the submucous coat to the naked eye. The muscle coat showed no apparent change and was clearly defined as a brown line. The subperitoneal coat was greatly thickened and had undergone an extraordinary transformation into pale bluish hyaline almost cartilaginous tissue, mixed with areas of fatty tissue. In some parts this was nearly two inches in thickness and resembled exactly the appearance seen in the other cases; it therefore needs no further description. The drawing reproduced was taken from this case. The only difference here was that the mucous membrane did present an ulcer, whereas there was no ulcer in the other cases. But again it was clear that this was not a malignant ulcer, as there was so little submucous infiltration compared to the extreme subperitoneal thickening.

Microscopic appearances.—The appearances are of an overgrowth of white connective tissue in the subperitoneal coat but the changes are evidently more acute as there are far more leucocytes, round cells, and endothelial cells between the fibroblasts. A gland taken from the mesentery showed no sign of carcinoma but signs of chronic inflammation. Sections were cut from different parts and stained for tubercle bacilli but none could be found. It is tempting to suppose that the cause of this condition was the same as that which caused the ulcer of the vagina—that is to say, that they were both tuberculous.

The child has been seen lately, is putting on weight fast, and is much improved. The vaginal ulcer is healing.

Commentary.

A peculiar form of tuberculosis appears to exist which affects segments of the intestinal tube and is characterised by thickening of the wall of the intestine. This thickening consists of firm connective tissue and fat, affects the submucous, muscular, and subserous coats of the bowel, and seldom shows either "tubercles" or caseation. The best name for this condition seems to be "hyperplastic tuberculosis," as Lartigau suggests. Benoit [12] proposed the name "pseudo-neoplasm," which recalls its superficial resemblance to a true neoplasm.

Situation.—The ileo-cæcal region is the most common site for this disease but it is found at times in any part of the large bowel, especially the sigmoid flexure and rectum, and less commonly in the ileum. The mesenteric glands which drain the area of gut affected undergo a similar change or may present the usual picture of gland tuberculosis. In the rectum it has been mistaken for tertiary syphilitic thickening. A precisely similar hyperplasia caused by the tubercle bacillus occurs in other parts of the body, such as in the larynx, peritoneum, pleura, joints, and lymph nodes. A striking instance occurred at the London Hospital recently in which the coccygeal bursa was changed into a compound ganglion with melon-seed bodies and around it was a large mass of firm fibrous and fatty tissue. Removed as a coccygeal tumour, there can be little doubt that it was an instance of this form of hyperplastic tuberculosis. Another instance is a child who used to attend the hospital with similar disease of the larynx.

Hartmann and Pilliet [3] in 1891 reported two cases, and Delbet in the discussion that followed said that he had seen such a case in Billroth's clinic. Many such cases have since been reported in the foreign literature, notably by Pilliet and Thierry in France and by Conrath [4] in Germany. In the American literature there is an article by Lartigau [2] which enters very fully into the subject with report of a case, and another by Crowder. [6] The only case I have found reported in the English literature is by Page. [9] Cases reported by Sainsbury [10] and Lediard [8] are cases of the common form of caseous tuberculosis of the gut with multiple ulcers. Page's case was thought to be one of appendicitis and was operated upon as such. A necropsy revealed the true nature of the lesion. A case reported by Gilford [7] as sarcoma of the cæcum must have been an instance of this condition from the description given. The tuberculous history, the existence of the disease for 13 years, the fact that there was no ulceration, and the microscopic description of round and spindle cells lead to this conclusion.

In the earlier volumes of the Transactions of the Pathological Society of London, even as far back as 1857, there are a few stray cases reported of non-malignant stricture of the colon which I think must have belonged to this group, and Treves reports a case in 1887 which may have been of this nature. A few months ago Keetley refers to the subject in an article in THE LANCET, which also deals with the common form of tuberculosis of the gut; and Kelly in his book on the Appendix gives two pages to the subject, based on Crowder's article.

Pathology.

In this account no notice is paid to the ordinary form of localised tuberculosis of the gut, with tubercles, caseation, and ulceration. The account is confined to the "hyperplastic form" of tuberculosis.

Morbid anatomy: Naked-eye appearances.—There are two types presenting different appearances according to the position of the main collection of new tissue, the "submucous" and the "subserous" types. It is important to note this because the subserous type can be distinguished at once from a neoplasm, whereas the submucous type simulates a neoplasm very much more closely. The subserous type is less common and to it belong the three cases reported in this paper.

The submucous type.—The lumen of the gut is much diminished in size, so that a partial stricture is produced; indeed, there may be multiple strictures, aggravated by the presence of polypi. Ulceration of the mucosa may be present but just as often it is completely absent. Polypi covered

with mucous membrane are of frequent occurrence and are multiple or single. The submucosa is much thickened and presents a *peculiar bluish or whitish-grey translucent appearance, and resembles cartilage in hardness and translucency.* This layer to a casual glance resembles the submucous thickening seen in malignant ulceration, but in the latter case the thickening is less firm and is granular, not translucent, on section, and of a characteristic pale buff colour. The muscle coat is thickened even beyond the stricture, so that there would appear to be true hyperplasia of the muscle elements stimulated by the mild bacterial poison. This layer stands out sharply owing to its brown colouration. The subserous coat shows the most characteristic change. It is immensely thickened and consists of *translucent bluish or grey fibrous tissue of extreme hardness surrounding yellow areas of highly developed fatty tissue* which pass insensibly into one another. The latter in no way resemble patches of fatty degeneration or caseation. Patches of caseation are sometimes seen, and even tubercles, but they were not present in most of the cases reported. The serous coat is slightly thickened, but the surface is usually smooth and is not adherent to surrounding structures. The whole mass is exceedingly vascular and bleeds readily if cut open, but the new vessels are mostly capillaries and are masked by the increase in the fat, so that the general colour of the tumour from the outside is yellow. Changes may occur from secondary infection with pyogenic organisms leading to the formation of abscesses and green gangrenous patches, with perforation and peritonitis, as occurred in Case 1.

The subserous type shows very little, if any, submucous thickening to the naked eye, but great thickening in the subserous coat; and in this it differs utterly from a carcinoma. The three cases reported above illustrate this point extremely well.

The condition differs from the common form of tuberculosis of the gut as follows. There is often no ulceration, and ulceration when present is irregular, covers a large area of gut, and is not multiple, nor is it confined to the distribution of the lymph follicles. The fibrous polypi if present are characteristic. Miliary tubercles are seldom seen and caseation is rare. The peritoneal coat is little altered and shows few adhesions. No tubercles are seen on the peritoneal surface. It may usually be distinguished from carcinoma by the following points: ulceration may be completely absent, whereas in carcinoma it is always present. Ulceration, if present, seldom shows the piled-up rolled edge with granular submucous thickening so characteristic of a neoplasm. The subserous coat shows much more thickening than is common in new growth and there are no secondary nodules in the gut wall or peritoneal covering. At an operation it may be impossible to distinguish between these two, but knowledge of this disease should induce the surgeon to excise localised tumours of the colon if at all possible. After a microscopic examination or at necropsy there should seldom be any doubt as to which condition is present.

Histology.

The epithelium shows no change or is absent if there is ulceration, but no down-growth of epithelial cells is seen. The basement membrane is intact but is thickened. The polypi consist of a core of thickened mucosa infiltrated with leucocytes and round cells, covered by a layer of epithelium. The submucosa shows adult granulation or fibrous connective tissue with many newly formed capillary blood-vessels, the spaces being filled with round cells, and towards the lumen of the gut with polymorphonuclear leucocytes. In places there are many coarsely granular eosinophile cells. The muscular coat is thickened, chiefly from multiplication of the muscle cells, but in some cases from increase in the interstitial supporting framework. The subserosa is very similar to the submucosa but there are fewer leucocytes and more connective tissue cells and young blood-vessels. There are large areas of vacuolated fatty tissue, the supporting framework of which shows increase in fibrillæ and nuclei. The larger vessels have very thick walls, the adventitia being chiefly affected. There is slight thickening of the peritoneal layer. Tubercle bacilli have been demonstrated in many of these cases, sometimes being present in very large numbers, but they could not be found in any of the three cases reported above. The microscopic picture is, however, so very characteristic that the diagnosis for practical purposes of prognosis and treatment can be made without them. Other organisms are sometimes found the result of secondary infection. In Crowder's case there was no ulceration and in places giant cells and tubercle bacilli were common. Yet in sections taken from other parts of the tumour the picture was that of hyperplasia pure and simple as just described. This case seems very well to supply the connecting link between this form and the common form of tuberculosis of the gut. Crowder also gives a case where hyperplastic tubercle became the seat of carcinoma.

Etiology.

Secondary and predisposing causes.—Any disease which lowers the general resistance of the organism may predispose to this condition; for instance, measles in Case 3. Itié thinks that simple colitis may pass into this condition. Both sexes are attacked in about equal numbers. In the majority of cases the disease has arisen during middle life. Case 3 is the only case under ten years of age so far reported, and cases under 20 are rare. Occupations which involve repeated pressure on the abdominal wall are said to predispose to this disease.

Exciting cause.—The morbid anatomy and histology point to the presence in the gut wall of some mild and slowly acting poison of such a nature as to stimulate the local connective tissue, fat, and endothelial cells to multiplication and reproduction of their special tissue elements—that is to say, a poison which leads to hyperplasia rather than to cell destruction and degeneration as occurs in giant cell and caseous tubercle.

The proof that the tubercle bacillus is the exciting cause is as follows. In many cases tubercle bacilli have been demonstrated in the tissues in large numbers. In some cases one part of the tumour has shown ordinary caseous and giant-cell tuberculosis, while another part has shown the hyperplastic appearances. Portions of the growth injected into guinea-pigs have led to tuberculosis. In the majority of cases there has been found an old chronic tuberculous focus in the lungs, sometimes with cavitation; advanced tuberculosis of the lungs on the other hand has been absent, a condition which usually goes with multiple tuberculous ulceration of the lymph follicles of the gut. The suggestion is that the gut becomes infected with an attenuated form of the tubercle bacillus, usually by means of swallowed sputum from a small healing cavity in the lung. The patient is fairly resistant to the tubercle bacillus, as shown by the state of the lung lesion. The gut becomes infected at some spot where the fæces tend to stagnate, as in the cæcum or sigmoid flexure. The patient being resistant and the bacillus weak, hyperplasia occurs rather than necrosis. Previous gross ulceration is certainly not necessary for such infection as there is often no ulcer present; and Orth has proved by experiments on animals that tubercle bacilli can make their way into the connective tissue spaces and lymphatics of the gut without a breach in the epithelium. A similar process is seen in miliary tuberculosis, where the tubercle bacilli settle on the endothelium of the intima of a blood-vessel and pass through into the perivascular lymphatics and form tubercles. The microscopic picture is so characteristic that a diagnosis can be made, even though tubercle bacilli cannot be demonstrated. It is possible that the disease may be primary in the gut in a person whose resistance is lowered and this was the probable origin in Cases 1 and 3. But usually there is an old primary focus in the lung—as in Case 2—and this explains why the disease is so much more common in adults, fibro-caseous tuberculosis of the lung apex being uncommon in children.

Clinical Appearances.

The disease may be latent and only discovered at an exploratory cœliotomy, as in Case 3. Sometimes the symptoms suggest appendicitis with local persistent exudation and the condition is discovered at the operation. At other times there are symptoms of chronic intestinal obstruction with acute exacerbations with or without palpable tumour. The diagnosis is then apt to be made of malignant disease of the colon. Again, there may be obscure symptoms of colic, with a sudden attack of purulent peritonitis, localised or diffuse, as in Case 1. At operation a diagnosis may be made of peritonitis secondary to perforation of a malignant ulcer. The symptoms may be colonic pain, vomiting, constipation, or diarrhœa. The stools may contain mucus and even blood, but usually do not do so. There may be no wasting or wasting may be extreme. If ulceration is present there may be signs of colonic tumour, usually freely moveable, and of intestinal obstruction. Or the signs may be those of peritonitis with or without localised exudation and abscess.

Diagnosis.

The tumour itself may simulate any of the following: carcinoma, sarcoma, actinomycosis, excessive exudate caused by appendicitis, and a fæcal tumour. From carcinoma the following points may be of use: the age of the patient, the length of the symptoms, and signs of a colonic tumour without blood and mucus in the stools. A marked tuberculous family history and the presence of tubercle elsewhere might be of some help. The finding of bacilli in the stools is of little practical use, as, if found, they might come from the lung or elsewhere. The diagnosis will usually be made at operation, or at necropsy, or by the course of the case.

Treatment.

The condition is usually not discovered till the peritoneum is explored at operation; and even then it may be difficult to decide whether the tumour is malignant or not, as even if familiar with this form of tubercle one would wish before giving an opinion to examine the cut surface of the gut wall, which would add considerably to the risks of the operation. The lesson to be drawn seems to be that extreme emaciation of the patient and the common occurrence of malignant disease in the colon should not deter the surgeon from an excision of a localised colonic tumour if there is nothing to make a diagnosis of malignant disease certain such as the presence of secondary deposits in the peritoneum or liver. If the tumour is malignant the patient will certainly die if nothing is done, whereas if it is tuberculous the patient may survive many years, even though excision be not complete. Conrath [4] has collected 85 cases of localised tuberculosis of the colon of all forms treated by excision, with a mortality of 16·7 per cent. He enters fully into the different operations that might prove of service. These include excision with end-to-end or lateral anastomosis, short-circuit operations, artificial anus, and simple laparotomy as in general tuberculous peritonitis.

Apart from excision, or after excision, the treatment would follow that usually adopted for tuberculous lesions, perhaps combined with injections of tuberculin. In Case 3 the treatment adopted by Mr. Openshaw proved extremely effective—namely, bringing the tumour out on to the skin at the first operation, followed at a later operation by removal of the tumour. By this means all shock was avoided in a patient who could ill-afford to undergo a severe operation.

To sum up, one would urge that the existence of this condition should be kept in mind by those who operate on the large gut, so that the patient may reap the benefit of a correct diagnosis.

My thanks are due to Mr. Hutchinson, jun., and to Mr. Openshaw for permission to make use of their cases. I wish to acknowledge my indebtedness especially to the papers of Conrath, Lartigau, and Crowder, on whose work much of the latter half of this paper is based.

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THE LOCALISATION OF POTASSIUM IN MALIGNANT TUMOURS.

BY ROBERT CATTLEY, B.Sc., M.B. EDIN.

(From the Pathological Laboratory of the University of Leeds.)

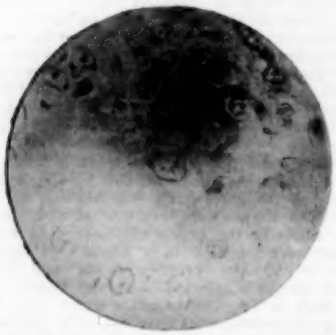
THE method which I have employed is essentially that devised by Professor A. B. Macallum for determining the distribution of potassium in normal animal and vegetable cells. The reagent used by Macallum is prepared by dissolving 20 grammes of cobalt nitrite, obtained from the Baker and Adamson Chemical Company (Easton, Penna.), and 35 grammes of sodium nitrite in 75 cubic centimetres of dilute acetic acid. The solution is accompanied by the evolution of nitrogen peroxide. After standing for some hours the solution is filtered to remove the precipitate caused by traces of potassium present as an impurity and the filtrate is diluted with water to 100 cubic centimetres. This reagent produces, in the presence of potassium, an orange-yellow precipitate which consists of the hexanitrite of potassium sodium and cobalt. The precipitate is insoluble in dilute solutions of the precipitating reagent and in 30 per cent. alcohol. It is so sparingly soluble in ice-cold water that the excess of the reagent may be removed by water, without removing the precipitate, if care be taken to keep the temperature sufficiently low. After the removal of the whole of the excess of cobalt reagent, ammonium sulphide may be added to react on the triple salt and produce the black sulphide of cobalt. In this way the detection of minute traces of potassium is rendered more evident under the microscope.

Macallum placed teased-out portions of fresh tissues, or sections of fresh tissues cut with the freezing microtome, in the undiluted reagent, which was allowed to act for 20 minutes. The tissues were then washed with ice-cold water until the whole of the excess of the reagent was removed, when they were mounted in a mixture of equal parts of glycerine of 50 per cent. strength and concentrated ammonium sulphide solution. Animal tissues prepared in this way keep for two months, after which they deteriorate. In making up the reagent I have used a 20 per cent. solution of cobalt nitrite manufactured by Merck and also a solution manufactured by the Baker and Adamson Chemical Company, the strength of which was not stated but which was estimated at 12 per cent. Merck's solution is similar in colour to tincture of iodine. With it a reagent can be prepared which is of almost the same strength as that used by Macallum. The Baker and Adamson Chemical Company's solution is of a pale blue claret colour; with it a reagent of about one-half the strength of that used by Macallum can be prepared. No essential difference was noticeable in specimens prepared by the reagents made from these two different solutions of cobalt nitrite. A reagent prepared by adding acetic acid to a solution of the double nitrite of cobalt and sodium did not give such uniform results as the reagent prepared in Macallum's way. Two specimens of nitrite of cobalt and sodium were employed. One was prepared by Kahlbaum and the other was kindly placed at my disposal by Mr. T. B. Wood of Cambridge. In all cases a freshly prepared reagent was employed. It was found necessary to introduce certain modifications of Macallum's method in order to prepare thinner and more uniform sections than could be obtained by freezing fresh tissues. A more accurate study of the histological relationships of the various cell elements was thus rendered possible. Slices of tumour tissue, not exceeding two millimetres in thickness, were placed in the reagent for 20 minutes and were then washed for two hours in several changes of ice-cold water. They were then transferred to an ice-cold mixture of equal parts of glycerine of 50 per cent. strength and strong ammonium sulphide in which they were allowed to remain for 30 minutes. During the whole of this time the tissues were kept in a refrigerator. After washing in running water for three hours they were dehydrated in four changes of acetone. To the last change chips of paraffin were added. Finally the tissues were imbedded in paraffin, with a melting point of 45° C., care being taken to use only sufficient heat to keep the paraffin melted. One hour was found to be sufficient for the paraffin bath. The paraffin was changed three times during this time. The blocks were cut with a Cambridge rocking microtome and the sections were mounted in Canada balsam neutralised with lithium carbonate. Alcohol was also used as a dehydrating medium, but the necessity for subsequently infiltrating the tissue with a clearing agent and thus lengthening the imbedding process was a drawback. Attempts to combine the reagent with formalin or other fixing agents did not prove satisfactory. It was not found possible to obtain permanent specimens. After some months the precipitate of potassium disappeared from the greater portion of the sections. The malignant growths examined were: carcinoma (17), sarcoma (5), and rodent ulcer (1).

Preliminary experiments, made on fresh normal animal tissues, gave results agreeing in every detail with those described by Macallum, except that, in addition to the precipitation of potassium, the tissues were invariably stained a yellowish brown or dark brown colour. This staining was quite distinctive from the colour produced by the precipitation of potassium. It was not altered either in colour or

intensity by the subsequent addition of ammonium sulphide, showing that it was not due to a compound of cobalt. The distribution of potassium in malignant tumours, as revealed by this method, is exactly analogous to that found in normal tissues. The potassium is always extra-nuclear in growing cells (Fig. 1). It is frequently present in considerable amount

FIG. 1.



Photomicrograph × 250. Carcinoma of mamma. Potassium extra-nuclear, chiefly immediately external to the nucleus.

immediately external to the nucleus. It also occurs in intercellular spaces and to a lesser extent in cell walls. The concentration of potassium in the cytoplasm adjacent to the nucleus is sometimes so marked as almost to obscure that body, but careful examination fails to give any evidence that potassium ever enters the nucleus of a growing cell. Potassium is present in greater amount in the cell cytoplasm of the more actively growing portions of a malignant tumour than in older and less rapidly growing portions. In degenerated and dead tumour tissues potassium is sometimes found in abundance both within the cells and in the intercellular spaces. In such cases potassium may impregnate any cellular element, including the nucleus. Usually it is not revealed in such fine particles as are found in growing cells. A similar distribution of potassium is seen in the fully cornified cells of epitheliomata (Fig. 2). These cells

FIG. 2.

Photomicrograph × 500. Highly keratinised cells over epithelioma of cheek. The whole of the cell elements are impregnated with potassium.

cannot be regarded as growing. In them the potassium is found in fissures in the keratin and also in the central portion of the cell which represents the remains of the cytoplasm and nucleus. The potassium precipitate in these cells does not differ in its arrangement in any essential detail from that found in the stratum corneum of the normal epidermis.

The distribution of potassium in dead tissues is irregular and must be regarded as an impregnation of elements which no longer possess any bio-chemical selective power. The possibility of the sulphur in keratin causing a precipitate of cobalt sulphide, and simulating the appearance produced by the presence of potassium, is negatived by the fact that in epithelial tissues treated by the cobalt reagent alone the precipitate is universally of a golden yellow colour which only becomes black on the addition of ammonium sulphide. Dr. Martha Tracy has employed Macallum's method in the study of malignant tumours without being able to confirm Macallum's results and has arrived at the conclusion that the method is not sufficiently reliable to be of any real value. Dr. Tracy found evidence of potassium only in the cell nuclei. It is possible that this difference of opinion may be due to different interpretations of the two different actions of the cobalt reagent—the staining action, which affects both cytoplasm and the nucleus, and the precipitating action which affects only potassium. When the nucleus is deeply stained an appearance is not infrequently produced which closely resembles that of the potassium precipitate.

I wish to express my indebtedness to Professor A. S. F. Grünbaum for much advice and help and to the honorary surgical staff of the Leeds General Infirmary for the supply of valuable material.

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Lewis.

SOME NEW METHODS FOR THE DETERMINATION OF URIC ACID, INCLUDING A SIMPLE CLINICAL PROCESS.

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AND
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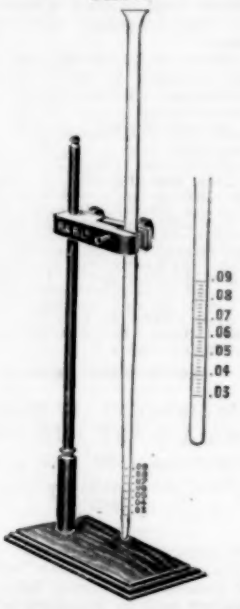
WE have been engaged for a considerable time in comparing existing processes and in originating new methods for the determination of uric acid in urine. Of the processes which we have devised preference is given to the following. 1. "A," a measuring process, in which a precipitate of

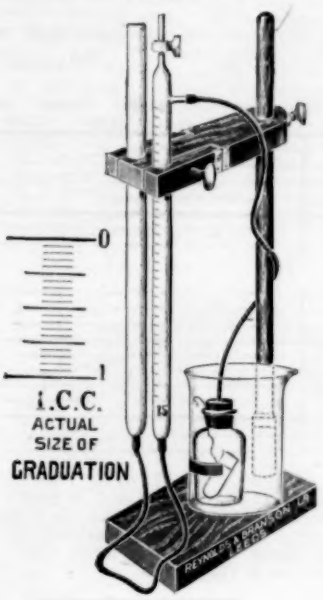
FIG. 1.



ammonium urate is measured in a tube specially shaped and graduated in parts per cent. of uric acid (see Fig. 1). 2. "B," a volumetric process in which a precipitate of

ammonium urate is collected and washed with a saturated solution of ammonium nitrate until free from chlorides and decomposed after solution in distilled water by adding in excess a known amount of a volumetric solution of silver nitrate. After filtering off and washing the precipitate of urate of silver, the amount of nitrate of silver in the filtrate is determined by means of a standard solution of thiocyanate of potassium, the filtrate being first rendered acid with a few drops of dilute nitric acid (1 in 3), a few drops of saturated solution in iron alum being used as an indicator. 3. "C," a gasometric process, in which the washed ammonium urate is decomposed by hypobromite of sodium in a specially devised apparatus which can also be used for the determination of urea, &c. (See Fig. 2).

FIG. 2.



General preliminary treatment for all three processes.—The precipitate used in the three foregoing processes consists of ammonium urate which is obtained by adding ammonium chloride or ammonium nitrate to urine which has previously been rendered slightly alkaline by the addition of 1 per cent. of lithium carbonate and subsequently boiling, the precipitated phosphates, &c., being removed by filtration. The method employed is as follows. Take 100 cubic centimetres of clear urine (warm if necessary to dissolve uric acid or urates) and place in a conical flask (Erlenmeyer) of about 400 cubic centimetres capacity, add one gramme of lithium carbonate, and boil the whole for three minutes. If frothing occurs it can be checked by blowing on the upper portion of the outside of the flask. Filter the liquid whilst hot and wash the precipitated earthy salts with a little distilled water until the filtrate measures 100 cubic centimetres at 15·5° C. In tropical countries a convenient and inexpensive method of cooling to the required extent is by means of immersion of the ordinary vessel in a mixture of sodium sulphate one part and water four parts.

Process "A."—To 50 cubic centimetres of the filtered alkaline urine, which contains the uric acid as lithium urate, add five grammes of ammonium chloride and shake the flask until solution occurs. After three minutes warm the contents of the flask to 50° C. so as to secure a uniform aggregation of the precipitated urate of ammonium. Now pour the whole into a tube graduated in parts of uric acid per 100 and allow deposition to take place and take the reading after 24 hours have elapsed. If the urine does not contain a high percentage of uric acid the reading can be taken in four hours. If any ammonium urate adheres to the surface of the glass the tube should be gently rotated.

Process "B."—The ammonium urate is obtained as follows. To 50 cubic centimetres of the filtered alkaline urine add 15 grammes of ammonium nitrate and shake the flask until solution occurs. After three minutes warm the contents of the flasks to 50° C. as in Process "A." Transfer the whole to a beaker and allow to stand for two hours. Collect the precipitate on a filter paper of 5·5 centimetres diameter and wash with about 10 cubic centimetres of a saturated solution of ammonium nitrate until no trace of chloride is indicated by the addition of a few drops of a solution of 5 per cent. of nitrate of silver acidulated with nitric acid. After washing the precipitate with about 5 cubic centimetres of distilled water to remove excess of ammonium nitrate, transfer it with the filter paper to a beaker with about 40 cubic centimetres of hot distilled water; solution being effected, pour off from the filter paper and wash the latter with two successive quantities of 5 cubic centimetres of distilled water: to the 50 cubic centimetres of solution thus obtained a measured quantity of the nitrate of silver solution is added—e.g., 10 cubic centimetres or 15 cubic centimetres. Add about half a gramme of powdered talc and stir the whole well, filter into a flask previously rinsed with a little distilled water, and wash the precipitate with about 10 cubic centimetres of distilled water. Add to the filtrate in the flask a few drops of dilute nitric acid (1 in 3) and a few drops of a saturated solution of iron alum and titrate with a standard solution of thiocyanate of potassium. The number of cubic centimetres thus obtained is subtracted from the number of cubic centimetres of nitrate of silver solution originally used and this gives the exact amount of nitrate of silver required for the uric acid in solution. Solutions required for Process "B": standard silver nitrate solution—$\frac{n}{20}$ solution silver nitrate, 500 cubic centimetres; distilled water, 20 cubic centimetres; one cubic centimetre of the above equals uric acid 0·005 gramme. Solution of potassium thiocyanate of equivalent strength to above; dilute nitric acid, 1 in 2.

Process "C."—Dissolve 31 grammes of ammonium chloride in 100 cubic centimetres of urine previously treated with lithium carbonate and decant off the clear portion as shown in Fig. 3, and transfer the remainder with the

FIG. 3.

precipitate to a narrow cylindrical jar of about 25 cubic centimetres capacity. In a few hours the precipitate will be ready to transfer to a small filter paper 5·5 centimetres in diameter. Care must be taken that any precipitate adhering to the vessels used is detached and washed out on to the filter paper with some of the clear urine. Wash the precipitate and edges of the filter paper carefully with distilled water, the precipitate being disturbed as little as possible so that the wash water may percolate through it. The washing of the precipitate may be performed in the following manner. Allow the liquid to drain from the precipitate, then fill the filter paper with distilled water by means of a wash bottle with a fine jet. Repeat this operation a second and a third time. Test some of the filtrate with a 5 per cent. solution of nitrate of silver, acidulated with nitric acid, 5 per cent. Only a very slight precipitate should be given, indicating the absence of any appreciable amount of ammonium chloride, but should the filtrate still contain this salt wash with a small additional amount of distilled water. Place the precipitate with the filter paper in the generating bottle of apparatus (Fig. 2), fill the tube up to the mark (25 cubic centimetres) with the hypobromite solution, and lower it into the bottle by means of string. The temperature of the solution should approximate to that

of the room in which the operations are carried out. This may be easily attained if the hypobromite solution is immersed for some time in the water vessel in which the generating bottle is placed. Now place the cork in the generating bottle and plunge the bottle in the vessel of cold water of a similar temperature to that of the hypobromite solution. After two minutes adjust the water level in the measuring burette to zero and then close the tap and observe if the water level remains constant. In order to test if leakage occurs in any part of the apparatus alter the water level in the measuring burette; any defect is then easily seen. Finally, lift the generating bottle and allow the reagent to flow out of the tube, and shake so as to promote the reaction between the sodium hypobromite and the ammonium urate. After ten minutes, during which time the bottle should be shaken at intervals, adjust the level in the two tubes and read off the percentage of uric acid, as indicated by the nitrogen evolved. The hypobromite solution is prepared as follows:—

Soda solution { Caustic soda, 41 grammes. Distilled water to measure 100 cubic centimetres.

Bromine solution { Bromine, 1 cubic centimetre. Potassium bromide, 2 grammes. Distilled water to measure 10 cubic centimetres.

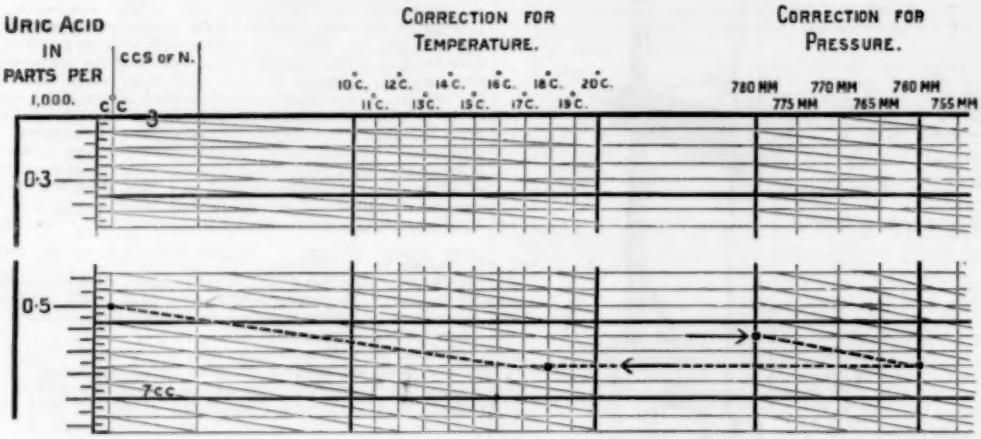
For use mix equal volumes immediately before being required and cool.

To correct a reading for atmospheric pressure and temperature a calculating scale has been devised (a portion is represented in Fig. 4). 1. Read on the scale the observed number of cubic centimetres of nitrogen obtained. 2. Follow the horizontal line along the point of intersection of the vertical headed by the observed barometric pressure, reading between the lines where necessary. 3. From this point of intersection follow the oblique line to the right or left to the point where it intersects the vertical of 760 millimetres. 4. Follow the horizontal line to the point of intersection with the vertical of observed temperature. 5. Continue again along the oblique line to the left to the vertical number 0° C. The reading of cubic centimetres obtained at this point is the volume of gas corrected to normal pressure and temperature, and the amount of uric acid which this represents is shown in the last column to the left—e.g., 6·6 cubic centimetres N. at 1° C. and 780 millimetres Hg 6·4 cubic centimetres of gas = 0·05 per cent. uric acid.

A large number of analyses on duplicate samples have been made in order to obtain comparative results with the different processes. The following are selected to illustrate the general concordance obtained. Dr. Nierenstein obtained by process "C" 0·049 per cent. and by the Gowland-Hopkins process 0·049 per cent. The Clinical Research Association reported as regards the same sample 0·05 per cent. The following comparative results were also obtained by four independent workers, the methods used being the "A," the "B," and the "C," and the Gowland-Hopkins method, portions of the same bulked urines, specific gravity 1·023, being used in each case. The amount of uric acid obtained by Process "A" by J. H. Gough in four hours was 0·053 per cent.; by Process "B" by Dr. Dimmock, 0·052 per cent.; by Process "C," by F. W. Branson, 0·055 per cent.; and by the Gowland-Hopkins method by the Clinical Research Association, 0·056 per cent. One of us (A. F. D.) also obtained on different dates the following average results (15 samples being used), the specific gravity of the samples ranging from 1·013 to 1·028, the average specific gravity being 1·021: uric acid parts per 100, Process "A," ·053; Process "B," 0·054

Conclusions.—Process "A" is a very convenient method and gives approximately correct results in a short time. Process "B" is a quick method and gives very concordant results. Process "C" is suitable for proportions of uric acid ranging from 1 in 1000 to 1 in 5000. Urea is also easily determined by means of the uric burette, one cubic centimetre of urine (carefully measured by means of an accurate pipette) being used, in place of the collected precipitate as in Process "C."

FIG. 4.


URIC ACID IN PARTS PER 1,000.
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BRONCHIECTASIS IN CHILDHOOD, WITH SOME OBSERVATIONS ON THE CONDITION KNOWN AS HONEYCOMB LUNG.

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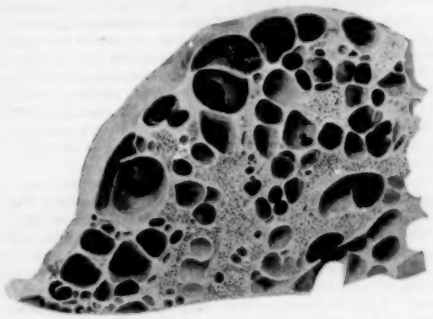
IN order to confine these remarks on bronchiectasis in childhood within reasonable limits those cases which are due to the presence of foreign bodies or to the pressure exerted by enlarged glands on the bronchial tubes are not considered. It will be most convenient to start with an investigation of the pathology of the ordinary form of the affection and then to consider the clinical manifestations and treatment of the disease.

The lungs of children, and sometimes of adults, occasionally present a peculiar cystic appearance well designated by the descriptive and non-committal term "honeycomb lung." In some cases the condition is bilateral and universal, in others it involves parts only of the lung or may be limited to one lobe. Whatever the distribution, the cavities in all cases present a similar appearance. They are multiple, more or less spherical, and generally larger towards the periphery and smaller towards the centre of the organ. Observers with great unanimity describe them as "varying in size up to the diameter of a pea." More often than not the pleurae are not adherent and the superficial bullae project, in the recent state, as small transparent blisters beneath the pleural envelope. The cavities are lined by a smooth whitish lining

membrane, communicate with each other by small circular orifices, or are incompletely separated by sharp falciform septa, and either are empty or contain a certain amount of puriform material (Fig. 1).

Of the cases which have been reported those of Dr. S. J. Sharkey, which were published in the St. Thomas's Hospital Reports, Vol. XXII., are perhaps best known, the illustrations having been reproduced in several text-books. Cases have also been communicated to the Pathological Society by Dr. H. H. Tooth, Dr. H. Morley Fletcher, and Dr. J. M. Bernstein. Since Dr. Sharkey's two cases nine instances of honeycomb lung have been recognised in the post-mortem room of St. Thomas's Hospital. Various explanations of the appearances presented by these lungs have been advanced. Dr. Sharkey described his specimens as examples of acute bronchiectasis of the smaller tubes. Dr. Tooth looked upon the cavities in his case as dilated bronchioles with possibly some destruction of the walls of adjacent alveoli by broncho-pneumonia. The late Dr. Kanthack and Dr. H. D. Rolleston, who reported on this specimen, stated definitely that the cavities were not bronchiectases but were vomicæ formed by the breaking down of broncho-pneumonic masses or, in other words, were abscess cavities in communication with the bronchioles. This is in accordance with the opinions of Trousseau, Bristowe, and Gardner. In the case reported by Dr. Bernstein, Dr. R. G. Hebb suggested that, in the absence of evidence that they were abscess cavities, they were probably terminal bronchioles and infundibula.

FIG. 1.



A piece of "honeycomb" lung showing the configuration of the cavities and the falciform septa in their walls.

Before describing the microscopical appearances in some cases I have recently examined it will be as well to recall the arrangement of the terminal air passage in the lungs. The terminal or lobular bronchioles expand into cavities which are termed atria (or alveolar passages). These in turn communicate with a number of blind diverticula which are completely covered with air cells and are known as infundibula or air-sacs. Thus between each feeding bronchiole and its infundibula is a cavity, constant in all parts of the lung, and known as the atrium. The atria may be distinguished from the terminal bronchioles by the absence of smooth muscle fibres and by the characters of the lining epithelium which is flattened instead of cuboid and ciliated as in the bronchioles. The diameter of an atrium is rather more than half that of the terminal part of an infundibulum, and, unlike an infundibulum, each atrium has three or more openings, one bronchial and the others infundibular, whereas the opening of an infundibulum is single and at the point where it joins its atrium. The minute air cells or alveoli of the lung are found sparsely on the walls of the terminal bronchicles but they involve the whole circumference of both atria and infundibula. The polygonal subpleural areas visible on the surface of a lung to the naked eye are the ends of groups of infundibula.

Microscopical examination of a honeycomb lung which was obtained from a patient who died from acute miliary tuberculosis showed that the cavities did not all originate in the same way. Some were evidently dilated bronchioles, for muscular tissue could be recognised in the walls and they were still lined with columnar epithelium. Some were in process of formation by dilatation of the atria and infundibula. The crenated margins of the cavities and their communication with the bronchioles were evidence of this (Fig. 2). Yet other spaces, larger than either of the foregoing varieties, were present. They were sharply punched out and their walls consisted solely of inflammatory cells. They were surrounded by zones of pulmonary collapse and in some places the process of excavation, which was effected by the breaking down of broncho-pneumonic

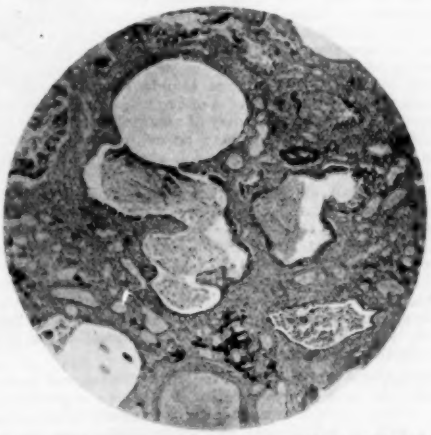
FIG. 2.

Section of "honeycomb" lung from a patient who died from acute miliary tuberculosis. The crenated cavities in the centre are undergoing acute emphysematous dilatation. The three large cavities on the periphery are the result of necrosis.

patches, could be recognised. In addition to the changes mentioned, many of the bronchi had shed their epithelium and were plugged with masses of inflammatory exudation or surrounded by zones of peribronchitis.

In a honeycomb lung of longer standing, which was obtained from an adult, many of the cavities were lined by columnar epithelium which was, in places, definitely ciliated (Fig. 3). Since cilia normally cease at the terminations of

FIG. 3.



Section of "honeycomb" lung from a young adult. The two sinuous cavities in the centre are lined by columnar ciliated epithelium.

the lobular bronchioles, their presence in the cavities indicates that the latter are bronchiolectases, unless we assume that the ciliated lining can, in certain circumstances, extend downwards to line cavities formed by a process of necrosis. Giant cells occur in the walls of many of the cavities in honeycomb lungs. In some cases their presence is an indication of tuberculosis, giant-cell systems being present and miliary tubercles, which are easily recognised by

the naked eye. In other cases the giant cells are solitary and there is no other evidence of tuberculosis; these cells are apparently of the same nature as those which are common in ordinary broncho-pneumonia and appear to be derived from the alveolar epithelium.

It appears, then, that the cavities in a honeycomb lung may be of at least three different kinds. Some are bronchiolectases; some are atriectases combined with emphysema; and some are formed by necrosis of lung tissue. The frequency with which the bullæ project beneath the visceral pleura is in itself evidence that all are not simple bronchiolectases, for the bronchioles do not abut upon the serous membrane. The formation of a honeycomb lung is due to broncho-pneumonia. Pleural adhesion plays no part in the initiation of the condition although it may develop later, for in many cases there is no pleural adhesion at all.

The question naturally arises whether these lungs are the antecedents of the chronic bronchiectases of childhood and later life. There is strong presumptive evidence that some at least of the cases do arise in this way. Comparison of a honeycomb lung with a saccular bronchiectasis from an adult makes it appear almost certain that the latter is but an advanced condition of the former. The shape, grouping, and communications of the cavities are similar, even the falciform septa may be recognised, but in the adult the walls and septa are thicker and the lining membrane more opaque in consequence of the long duration of the inflammatory process. There is also ample evidence, from the cases reported by Dr. Theodore Fisher, Dr. J. W. Carr, and others, that the chronic bronchiectases of children frequently conform to the saccular type and, moreover, the clinical history almost invariably shows that the condition dates from an attack of measles, whooping-cough, or broncho-pneumonia.

A comparison of the abnormal physical signs recognised during life with the condition of the lungs as discovered by post-mortem examination shows that cases of bronchiectasis, in childhood fall clinically into three distinct classes. 1. Cases in which honeycomb lung is present and in which, the antecedent lung inflammation having subsided, death has occurred from some independent disease. In such cases no abnormal pulmonary signs are present. The lung condition cannot be recognised clinically and is only discovered after death. 2. Cases in which considerable broncho-pneumonia co-exists with the honeycomb lung. Here the physical signs are those of disseminated broncho-pneumonia and are usually most marked behind at the lung bases. Exceptionally, during the progress of such cases, cavernous sounds appear. The development of these sounds in the broncho-pneumonia of childhood does not always indicate that the lung is tuberculous, as some have assumed. It may simply indicate the emptying of dilated bronchi and when the tubes again become blocked the cavernous sounds may disappear. In moribund infants the feebleness of the respiratory mechanism may preclude any forcible entry of air into the affected lung, so that the physical signs may be completely masked. 3. Cases of longer standing in which shrinkage of the lung, dislocation of the heart towards the affected side, retraction of the chest wall, clubbing of the fingers, and perhaps signs of venous congestion have developed. The flattening of the chest wall may be restricted to the zone below the nipple on the left side or be bilateral at the bases. It rarely occurs in other positions. Most of the cases observed have been left-sided and basal. The greater length and the narrowness of the bronchi of the left lower lobe, owing to the presence of the heart on this side of the chest and the greater length of the left lung, may account for the localisation of the lesion in the left lower lobe.

The cardinal symptoms in children with advanced bronchiectasis are cough, dyspnœa, and copious expectoration. More or less clubbing of the fingers can usually be recognised. The cough is paroxysmal and often marked at night on retiring to bed. It may be induced by some particular change in the position of the patient which presumably leads to overflow of secretion stagnating in the cavities of the lung. As a rule the cough is present winter and summer alike, but it may be much aggravated by fresh attacks of catarrh which are liable to occur in the colder months. The onset of cough can frequently be traced back to an attack of measles or of whooping-cough, complicated by bronchitis or broncho-pneumonia, which may have occurred many months or even several years before. The dyspnœa is especially noticeable on exertion but may be obvious even when the patient is at rest, the breathing being shallow and hurried. It is rapidly aggravated by a complicating bronchitis or pneumonia. The expectoration is highly characteristic. It consists of tenacious, airless pus with a greenish tinge. It may be coughed or vomited up in quantity once or twice a day and is then very noticeable and usually mentioned by the parents. In other cases it is not voided in this characteristic fashion and sometimes, particularly in younger children, it escapes notice altogether because it is all swallowed. It rarely becomes fœtid in childhood. Hæmoptysis occurs occasionally. Tubercle bacilli are absent. The temperature varies. In some cases there is no fever; in some the temperature is actually subnormal; in others pyrexia may be present, but it is remarkable what a quantity of pus may be contained in some of these bronchiectatic lungs without the production of constitutional symptoms. The general nutrition is, as a rule, well maintained and the facial aspect somewhat congested, and in this the cases contrast with those of chronic pulmonary tuberculosis in which emaciation and anæmia form marked characteristics.

The lung signs vary considerably with the amount of secretion in the tubes. If the latter are full of pus the percussion note over the affected lobe is very dull and the vocal fremitus much diminished. The breath sounds also are feeble or absent and the voice sounds indistinct. In fact, the signs approximate to those of pleural effusion, but of pleural effusion in which the chest is contracted and the heart uncovered or even displaced towards the affected side. If now the tubes be emptied as the result of forcible coughing, or of vomiting, or, more surely, by inversion of the patient, the signs undergo a remarkable change. The percussion note becomes more resonant; the vocal fremitus is increased; the breath sounds become louder and assume a loud bronchial or cavernous quality, and many sharp crackling crepitations become audible. Bronchophony and pectoriloquy appear. Sometimes the change in the physical signs is quite disproportionate to the amount of pus expectorated and we are driven to assume that only the main bronchus going to the affected lobe was blocked and the emptying this has allowed access of air to the parts below.

In a well-marked case the results of examination with the x rays and fluorescent screen are also found to vary with the amount of pus in the lung. Examination before the tubes are emptied may show a dense shadow on the affected side. The shadow may be so dense as completely to obscure the outlines of the heart and diaphragm. After the expectoration of pus the shadow may lighten up in a remarkable degree. The cardiac outline may be distinguished and dislocation of the heart towards the affected side may be detected. The dome of the diaphragm may also become apparent and be found to be elevated considerably. In some cases, examined when the tubes are empty, it may be impossible to distinguish any pulmonary opacity or displacement of the heart or diaphragm. I must express my indebtedness to Dr. A. H. Greg, who is in charge of the x ray department at St. Thomas's Hospital, for the interest he has taken in the examination of these cases.

The commonest complication of bronchiectasis in childhood is recurrent pulmonary inflammation. Sepsis with fœtid sputum is uncommon and the supervention of fever, sweating, and emaciation rather indicates fresh lung inflammation or tuberculosis. Other complications may occur, these are: hæmoptysis; mediastinal emphysema; subcutaneous emphysema, which may start in the mediastinum or be the result of exploratory puncture; empyema, which is uncommon; pneumothorax; subacute inflammation of the joints and periosteum of bones; suppurative meningitis; cerebral abscess; lardaceous disease or cardiac failure with signs of venous back pressure.

With regard to differential diagnosis, I have already mentioned that in the earlier stages the condition may give rise to no distinctive signs or be completely masked by an accompanying broncho pneumonia. In the advanced stage there are two conditions with which it is frequently confounded. These are empyema and pulmonary tuberculosis.

From what has already been said about the physical signs which are present when the tubes are full of secretion it is evident that the condition may closely simulate a collection of fluid in the pleural sac and if, on the insertion of an exploring needle, a bronchiectatic cavity is penetrated and pus is withdrawn, the diagnosis of empyema is extremely likely to be made. The mistake is unlikely if there is much contraction of the chest or dislocation of the heart towards the affected side. In doubtful cases

inversion of the patient or even a paroxysm of coughing induced by insertion of the tongue spatula or digital examination of the naso-pharynx may clear the bronchial tubes and render evident the nature of the case. In some instances bronchiectasis has been mistaken for an empyema discharging through the lung. Here again the diagnosis is largely a question of taking a careful history and making a thorough physical examination.

If the patient is first examined when the tubes and cavities are empty the condition is much more likely to be confounded with pulmonary tuberculosis. Here reliance must be placed upon the length of the history, the condition of nutrition, the characters of the temperature chart, the absence of tubercle bacilli from the sputum, the basal position of the lesion, and the fact that chronic tuberculous excavation of the lungs is not common in young children. When sepsis supervenes on chronic bronchiectasis in childhood, again the resemblance to pulmonary tuberculosis may occur. Fortunately the supervention of sepsis at this period of life is not common. I have only seen one case and here, after some weeks of hospital treatment, the child recovered sufficiently to be discharged. Of course, it is quite possible for bronchiectasis to be associated with, or complicated by, tuberculosis, but I have never seen any reason to believe that the cases of chronic bronchiectasis which attend at a children's out-patient department are tuberculous. I have had some under observation for five years and they appear to hold their own fairly well. Mr. L. S. Dudgeon, superintendent of the Louis Jenner Clinical Laboratory, has kindly reported on the sputum of every case which I have recognised, in some instances several examinations at prolonged intervals have been made, and never once has he detected tubercle bacilli. I must repeat that these observations refer to the chronic cases. Miliary tuberculosis has been recognised in honeycomb lungs beyond dispute, but I am inclined to believe that these cases die in the acute stage, leaving a residue of non-tuberculous cases of honeycomb lung which, as I have suggested above, develop into chronic saccular bronchiectases.

Treatment.—Since most of the cases arise as sequels to the broncho-pneumonias of whooping-cough and of measles the only prophylactic measures we can adopt consist in the proper treatment of the pulmonary inflammation which so commonly complicates these diseases. It is all important to recognise the necessity of proper ventilation, isolation, and careful supervision of the condition of the lungs in these diseases. The condition of the naso-pharynx, tonsils, and teeth also demands attention.

Although the bronchiectatic condition, when once established, is incurable, yet by simple methods the pulmonary condition can be much ameliorated and the patient's general condition considerably improved. The routine procedure should consist in regularly emptying the cavities as far as possible, and the administration of such drugs as are excreted by the lung and presumably exert an antiseptic influence on the bronchial tubes and their contents. The best method of emptying the cavities is by the process of inversion. Children can easily be taught to invert the body by leaning, face downwards, over the side of the bed with the hands resting on the floor. By this method considerable quantities of pus may be evacuated which would otherwise stagnate in the tubes and infect adjacent areas of lung. The best times to practise inversion are on rising in the morning, to get rid of the accumulated secretions of the night, and on retiring to bed, in order to avoid as far as possible overflow of the contents into adjacent bronchi and the irritating and disturbing cough excited by the presence of the pus. An alternative method of getting rid of the secretions is by the use of emetics, but in comparison with the method of inversion emetics are both uncomfortable and uncertain. The emetic usually advised is vinum ipecacuanhæ, and it is surprising what amounts of this preparation children will swallow without any result at all. The drugs which yield the best results in practice are garlic, creasote, turpentine, and cod-liver oil.

The most convenient way of administering garlic is in the form of the syrupus allii aceticus of the United States Pharmacopœia. A drachm of this may be given in combination with an equal quantity of cod-liver oil emulsion three times a day to a child of four or five years. Creasote is also useful but it is not easy to disguise its acrid taste. It may be given in maltine one half minim to a drachm but it is not a nice mixture. Turpentine is also advocated but I rarely use it internally in children. It may be given suspended with mucilage in doses of four or five minims three times a day to a child of six or eight years. I have noticed that linimentum terebinthinæ, if rubbed into the chest is absorbed not only by the child but also by the person applying it, the characteristic odour being imparted to the urine. For use in childhood the liniment should be mitigated with an equal quantity of olive oil. The practice of intratracheal injection is usually quite out of question in dealing with children but should it be possible it is obvious that it should be effected after the tubes have been emptied of their contents. The use of the creasote chamber, which is so efficacious in treating bronchiectasis in adults, is hardly applicable in childhood. Surgical drainage of the cavities is now practically abandoned. It is only of use in dealing with solitary cavities. When the cavities are multiple, as in an ordinary bronchiectasis, it affords very inefficient drainage, interferes with the expulsive action of the cough, and opens up an additional avenue of sepsis unless the greatest care be taken. A further drawback to its adoption is the great difficulty in determining when the excavation is solitary, so although its curative effect in solitary cavity has been recorded and I have had one case under my own observation in which a cure was effected by this means, its field of usefulness is very restricted. The indications for climatic treatment are similar to those in bronchitis. A warm, dry, and equable climate is a great aid to treatment.

Devonshire-place, W.

SOME OBSERVATIONS ON THE TREATMENT OF EPILEPSY IN THE INSANE WITH STRONTIUM BROMIDE.[1]

BY J. M. BENNION, M.A., M.D. CANTAB., &c.

THE patients chosen for this essay have been under supervision at the Oxford County Asylum for several years. Without exception all are very severe cases of epilepsy, both in regard to their fits and also their mental condition. Each patient has been, so far as possible, under the same dietetic and hygienic conditions. The ordinary daily routine of the asylum has not been altered in any way, so that any effect of my treatment has taken place under the same conditions that were in vogue before it was started.

Twelve male and ten female patients, all of whom were insane and suffered from epileptic fits at frequent intervals, were selected. To each patient 30 grains of strontium bromide, in water to the ounce, were given three times a day. Charts on all the cases were drawn up to show the following points—viz.: (1) the type and number of attacks, also whether they occurred in the day or at night; (2) the state of the appetite and bowels; (3) any alterations of the mental condition; (4) the dose of strontium bromide taken, if reduced or omitted for any reason; and (5) whether any rashes appeared. A temperature chart was also kept. These charts will be compared with similar ones, while the patients were under different forms of treatment. The results of the strontium bromide treatment on the two sexes will be taken separately so that any points of difference which the drug may show in its action on the sexes may be brought out more clearly.

In my series of 12 male cases, (*a*) five were of the *grand mal* type (Nos. 2, 4, 7, 9, and 12, Table I.) and (*b*) the remaining cases in Table II. had attacks of both *grand* and *petit mal*. 11 patients out of the 12 suffered from seizures which occurred night and day; in only one case were the fits confined to the night. Four patients, apparently, had aurae. The physical examination of the patients was satisfactory—i.e., no organic disease of the organs of the thorax and abdomen was discovered.

The male cases have been divided into two groups. Group 1 consists of (*a*) the five patients who had attacks of *grand mal* only. Charts on these patients were kept for four months during the treatment by strontium bromide. These will be compared with charts kept for a similar period while the patients were taking 15 grains each of sodium and potassium bromide thrice daily.

Table I. shows the total number of seizures to be 69 on strontium bromide and 73 on the mixed bromides—i.e., a decrease of 4 or 5·5 per cent. in favour of the former drug.

[1] Extract of thesis for M.D. degree.

TABLE I.

Case.	Number of fits for 4 months on strontium bromide.	Number of fits for 4 months on mixed bromides.
2	13	9
4	10	22
7	8	16
9	27	13
12	11	13
Totals 5	69	73

The table shows that in two cases—viz., Nos. 4 and 7—the drug reduced the number of fits to half what they were on the mixed bromides. These two patients certainly improved on strontium bromide. But in the two cases (Nos. 2 and 9) the seizures were more numerous on strontium bromide than on the mixed bromides.

TABLE II.

Case.	Number of fits for 4 months on strontium bromide.	Number of fits for 4 months on mixed bromides.
1	29	81
3	41	48
5	22	19
6	96	136
8	44	57
10	25	54
11	20	17
Totals 7	277	412

Group 2 is composed of (*b*) the remaining seven cases. These patients were all treated in a similar manner to those forming Group 1. Table II. shows the total number of seizures which they had were: (1) 277 on the bromide of strontium, and (2) 412 on the mixed bromides of sodium and potassium. The decrease of the fits therefore on the former treatment was 135, or 32·7 per cent. The drug was specially useful in the three cases (Nos. 1, 6, and 10). One patient (No. 8) after taking the bromide of strontium for six days became very dull and stuperous. The dose of the drug was accordingly reduced from 30 to 15 grains three times a day. This patient, previously to the strontium bromide treatment, had been taking some form of bromide for months, so it is difficult to say whether the stuperous condition which was noted soon after taking the bromide of strontium was in reality caused by, or related to, the action of this particular drug. The general health of the patients remained satisfactory throughout the strontium bromide treatment. No favourable effects as regards the maniacal symptoms were observed. No bromide rash made its appearance during the treatment. The temperature charts revealed nothing of importance.

The ten female patients chosen for treatment by strontium bromide were all chronic cases of epileptic mania, with attacks of both *grand* and *petit mal*. In Group 1, which is composed of six patients, charts similar to those drawn up for the male cases were kept for a period of three months (*a*) while the patients were taking 30 grains of strontium bromide thrice daily and (*b*) while taking no bromides.

TABLE III.

Case.	Number of fits for 3 months on strontium bromide.	Number of fits for 3 months on no bromide.
1	18	32
2	14	30
3	0	16
4	27	47
5	31	57
6	29	41
Totals 6	119	223

Table III. gives the results of the charts as regards the fits. The six patients while on the bromide of strontium had a total number of 119 fits, as against 223 on no bromide salt. There was, therefore, a reduction of the seizures by 104—i.e., 46·6 per cent., in favour of the drug treatment. The above facts prove without any doubt the usefulness of this drug in controlling the fits. Of course, I am fully aware that the fits would have been reduced if the patients had been taking one or more of the other bromide salts. The mental condition of all these patients improved to a certain extent on the strontium bromide treatment, but whether this was due to the direct action of this salt on the cortical cells or was the result of a diminution of the fits I am unable to say. The patients, however, were less irritable and not so liable to outbreaks of mania. No rashes made their appearance. In no case was there any marked depression or occasion to diminish the dose of the drug.

The rest of the female cases are contained in Group 2. In this group charts were kept for three months, while the patients were taking 30 grains of strontium bromide thrice daily, which will be compared with similar ones while they were taking 15 grains each of sodium and potassium bromide for a like period.

TABLE IV.

Case.	Number of fits for 3 months on strontium bromide.	Number of fits for 3 months on mixed bromides.
7	39	48
8	67	70
9	15	32
10	5	25
Totals 4	126	175

A comparison of the two treatments shows that there was a decrease in the total number of fits by 49, or 26 per cent. in favour of the bromide of strontium. The patients were brighter in every way and the attendants considered their general behaviour improved.

Summary.—1. That, judging from my own experience, strontium bromide, as a rule, acts better in controlling the number and severity of the fits than the mixed bromides of sodium and potassium. 2. That strontium bromide rarely causes depression. 3. That rashes remained absent in all my cases. 4. That strontium bromide, in my opinion, acted best and most consistently on the female patients, in all of whom the action of this drug, as regards controlling the fits, was far superior to that of the mixed bromides. 5. That the maniacal symptoms of the male patients while taking strontium bromide were not influenced to any perceptible degree. 6. That the mental condition of the female patients appeared to improve. 7. That, considering the severity of the type of epilepsy on which I have made observations with this drug, there seems to me reasonable grounds for supposing that, with a milder form of epilepsy than is usually met with in an asylum an even greater benefit would be derived from the administration of this drug. 8. Lastly, I should be inclined to advise those who have epileptics under their care to give the bromide of strontium a fair trial, and I think they will find many cases in which this drug will have pre-eminence over the other bromide salts.

For much assistance on this subject I wish to tender my cordial thanks to Mr. T. S. Good, medical superintendent of the Oxford County Asylum.

St. Mary Cray.

AN OUTBREAK OF TYPHOID FEVER DUE TO EATING CLAMS FROM A POLLUTED SOURCE.

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So far as I am aware no case of typhoid fever has hitherto been recorded from the use of "clams" as an article of food. These shell-fish are not largely used but in many places near large estuaries with extensive mud-banks clams are collected and used by the poorer class of people. The clams so used appear to be two allied species of the genus Mya, of the class Lamellibranchiata which includes also the cockle and oyster. The two species are: Mya truncata, more common in

the open sea, and Mya arenaria, usually found in mud flats. This latter is universal along the shores of the Western Hemisphere as far south as New York and in the Eastern Hemisphere as far south as Rochelle and between the thirtieth and fortieth degrees of latitude, and is also common on many parts of the British coast, about low-water mark and chiefly in tidal estuaries where there is an admixture of fresh and sea water. The body of the clam is fleshy and of a yellowish-white colour and is provided with a "foot" with which it penetrates the sand or mud, the "foot" assuming various shapes for this purpose. In addition, the clam has also two syphonic tubes which when the animal is at rest are drawn down nearly into the shell. When active these syphonic tubes are protruded, one continuously drawing in and the other pouring out a stream of water, the food particles in the water being retained in the body. The shells are oval and of an ashy grey colour, a good specimen measuring about two and a half inches by five inches; those referred to in this article measured about one and a half inches by two and three-quarter inches. They are usually found buried about six inches deep in the mud but retire deeper than this when the tide is out. In Europe, Asia, and America they are used as food and relished by certain classes and are usually sold in a boiled condition. In the United States the clam is more important from an economical point of view than the oyster, large quantities being sold annually in Boston market as food for man and many more are salted and used as bait for fish. An excellent article on Myidæ is given in "British Conchology," Vol. III., by J. G. Jeffreys, F.R.S., from which most of the information concerning these shell-fish has been obtained.

The outbreak to which this article refers occurred in the Maldon rural district. On Oct. 20th, 1906, two men living in Heybridge were notified to be suffering from typhoid fever. The cases were immediately visited and on inquiries being made the fact was ultimately elicited that both men had partaken of some clams which were sold by a hawker in the bar of a local public house on Sept. 29th. It was unfortunately impossible to ascertain the names of all the men present in the bar when the clams were sold. Nevertheless, names and addresses of five men, in addition to the two notified, were obtained, all of whom had eaten varying quantities. In each instance ill effects had been produced; one man was found to be suffering from what was considered to be a low type of influenza but he was notified later to be suffering from typhoid fever; the second had been seized with diarrhœa and vomiting within two hours of eating the clams, the third had had a so-called bilious attack, and the remaining two had suffered from sickness and diarrhœa to such an extent as to prevent them from following their usual occupation for a few days. Thus, out of seven persons known to have partaken of the clams on this particular occasion three afterwards suffered from typhoid fever and the others from diarrhœa and sickness. Fortunately none of the cases have proved fatal.

The clams in question were obtained from the mud on the banks of the tidal estuary of the Blackwater in close proximity to the outfall sewer of the town of Maldon. They were stated to have been thoroughly cleaned and boiled but the boiling probably consisted in placing the clams in boiling water for a few seconds until the shells opened. The price charged by the hawker was four a penny and it is a significant fact that the men who consumed the largest quantities—namely, four pennyworth each—contracted typhoid fever. Unfortunately, I was unable to obtain a sample of these particular clams, but others from the same source were obtained and submitted to a bacteriological examination. The method of examination was as follows:—

1. Three clams, which had not been subjected to boiling, were taken and opened with a sterile knife and the bodies were cut up into small pieces and emptied together with the liquid contents from the shells into a sterile mortar. 900 cubic centimetres of sterile water were added to this, the resulting mixture being thoroughly stirred and ground up. A dilution was thus obtained of which 300 cubic centimetres corresponded to one clam. From this the following amounts—namely, ½ cubic centimetre, 1 cubic centimetre, 3 cubic centimetres, and 10 cubic centimetres, which corresponds to $\frac{1}{600}$th, $\frac{1}{300}$th, $\frac{1}{100}$th, and $\frac{1}{30}$th of a clam respectively, were taken and added to tubes containing bile salt glucose broth. Acid and gas were formed in each instance after 24 hours' incubation. Plates of bile salt lactose agar containing neutral red were made from these broths and the red colonies showing a haze were further examined and the subsequent cultural reactions corresponded with those obtained with bacillus coli communis. On incubating anaerobically in milk the bacillus enteritidis sporogenes was found to be present in $\frac{1}{100}$th of a clam.

2. Three clams were well boiled in water for 15 minutes, the bodies were cut through, and one cubic centimetre of the liquid obtained therefrom was added to a tube containing bile salt glucose broth. Acid and gas were formed and all the reactions of the bacillus coli communis were obtained.

The results of this examination proved the clams to be grossly polluted with sewage, inasmuch as the bacillus coli communis could be detected in $\frac{1}{600}$th, and the bacillus enteritidis sporogenes in $\frac{1}{100}$th part of a clam. It is especially noteworthy that even after boiling for 15 minutes the bacillus coli communis could be recovered from the bodies of the clams. The presence of bacillus typhosus could not be demonstrated, though a few suspicious growths were obtained on Drigalski and Conradi medium. These, however, did not correspond with the confirmatory tests of this organism. The fact that even 15 minutes' boiling failed to sterilise the clams is interesting, since it proves that shell-fish from a grossly polluted source cannot be rendered safe for human consumption even when boiled so long as to render them hard and indigestible. Shell-fish, such as these, if boiled for a shorter time would be much more dangerous, as more of the bacteria present therein would escape destruction.

I am much indebted to Dr. J. C. Thresh, medical officer of health of the county of Essex, for his kindness in allowing me to publish the details of this outbreak.

Chelmsford.

ABSENCE OF THE UTERUS IN THREE SISTERS AND IN TWO COUSINS.

BY L. NAPOLEON BOSTON, A.M., M.D.,

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THIS report of a family consisting of three sisters, the oldest 33 and the youngest 22 years of age, is offered largely as a matter of anatomical anomaly, although it is of material importance from a medico-legal standpoint since one of this trio married at the age of 25 years, and consequently became a subject of the divorce courts. The development of the breasts and the other changes known to puberty were experienced, except menstruation. The breasts and nipples were normally developed in each woman. Sentiment, sexual appetite, and sexual sensation were normal in each of these women.

Absence of the uterus is not infrequent judging from the number of cases which I have been able to collect from the literature. Lieutaud[1] has reported the case of a young woman where there was absence of the uterus, ovaries, and Fallopian tubes. Richerand[2] cites a similar case, both of which cases were based upon necropsy findings. From reported cases I find that absence of the uterus together with absence or deformity of the vagina is far more common than is simply absence of the uterus, and there is also apt to be associated deformity of the bladder, kidneys, clitoris, and labia. In striking contrast with these commoner deformities, the vagina, labia, and clitoris were normal in each of my cases and the hymen, or evidence of its having existed, was present twice. Phillips[3] reports an instance of two sisters, both of whom married and in whom there was a congenital absence of the uterus. Phillips's cases compare very closely to the three sisters, the subject of this paper. Sedgwick[4] cites the instance of another family where there was absence of the uterus in three of five sisters. That there was no deformity of the vagina and probably no sexual abnormality in Sedgwick's cases is evidenced through the fact that two of these three sisters were married twice. Sedgwick discusses at length the question of heredity in connexion with these malformities, but in my series of cases I was unable to gather any evidence of heredity.

[1] Dictionnaire des Sciences Médicales, vol. lx., 1812.
[2] Ibid.
[3] Brit. Med. Jour., June 18th, 1870.
[4] Medico-Chirurgical Review, London, July, 1863.

Family history.—The father and mother were born in Ireland. The father died at the age of 37 years from pneumonia. The father had four sisters, all of whom came to the United States, where they married and reared large families. The paternal grandmother reared a family of 14 children and each of her seven sisters married and bore children. The mother, now 64 years old, married at the age of 25 years, bore these three daughters, and is exceptionally well preserved. There is no history of any of her sisters or relatives having been afflicted with abnormality of the organs of reproduction. The great-grandmother had four sisters who married and each bore children.

CASE 1.—Miss X., aged 22 years, complexion fair, eyes blue, hair and eyebrows heavy brown, features perfect (decidedly feminine), height 5 feet 9½ inches, weight 136 pounds, a clerk, was born in Philadelphia. She had always enjoyed perfect health, except for an attack of diphtheria at the age of 17 years. She first consulted me for cardiac palpitation and general weakness; at which time the diagnosis was secondary anæmia, probably induced by overwork and too close confinement. Following treatment her erythrocytes increased from 3,200,000 to 4,600,000 per cubic millimetre; the hæmoglobin from 72 to 88 per cent.; while the leucocytes remained at approximately 10,000 per cubic millimetre. I was informed that menstruation had never been established and was further told that two older sisters, one 33 and one 27 years of age, had likewise never menstruated. Six months later Miss X. again consulted me for secondary anæmia which yielded promptly to treatment. Both this woman and her sister, Case 2, experienced periodic attacks of tenderness of the breasts, but I was unable to get any definite history as to the intervals between such attacks. Case 3 noticed her breasts to be unusually sensitive for some months after her marriage but could not recall that these attacks were at or near the time she vomited blood. In 1904 I suggested to the mother that a vaginal examination should be made, which was accordingly done with the following findings. There were but few light hairs surmounting the mons Veneris and the labia were normal. The clitoris was of normal size and appearance and possessed the sensation normal to this organ. The mucous membrane of the vulva and vagina was lubricated with a mucous exudate and was normal in every respect. The vagina permitted the introduction of three fingers for its entire length of three and three-quarter inches. At a point corresponding to the normal position of the cervix the vagina terminated as a closed sac, but the calibre of the vaginal canal remained uniform throughout. By bimanual examination it was impossible to detect any uterus, nor was it possible to induce pain or to elicit tenderness by firm pressure in the ovarian regions. Vaginal examination by the use of a speculum showed the vagina to terminate abruptly. There was no intimation of a cervix uteri, nor were there indentations, scars, or fissures in the vaginal wall.

CASE 2.—Miss J., aged 27 years, complexion fair, brunette, features fine and decidedly feminine, temperament hysterical, height 5 feet 4 inches, weight 120 pounds, occupation housework, was born near Philadelphia. She had the ordinary diseases of childhood, including scarlet fever. Her health had been perfect until the age of 23 years, since which time she had suffered at intervals from facial neuralgia. Most interesting in connexion with this case is that at puberty (13½ years) she developed a tumour of the abdomen which grew steadily for a period of two and a half years. Both the patient and her family claimed that her abdomen became so markedly distended that they consulted three physicians, each of whom made a vaginal examination and reported that they were unable to find the cervix uteri. The tumour developed mostly on the right side of the abdomen and, according to the mother's description, reached to the lower border of the right costal margin. Once each month during the existence of this tumour she had profuse hæmorrhages from the nose and upon three occasions she vomited a small quantity of blood. At the age of 16 years she noticed that her abdomen was decreasing in size and by the twentieth year the tumour had apparently disappeared. There had never been vaginal hæmorrhage. Vaginal examination revealed essentially the same conditions described in the report of Case 1 of this series, except that the hair of the pubic region was heavy and black and the labia majora were decidedly thicker (hypertrophied). The length of the vagina was two and five-eighth inches. The hymen was intact and displayed a central opening.

CASE 3.—Mrs. K., aged 33 years, brunette, a widow, married at the age of 25 years, height 5 feet 5½ inches; her weight at the time of marriage was 120 pounds; and her present weight was 234 pounds. She had enjoyed good health, suffering only from the diseases of childhood. At puberty she experienced most of the changes common to that age, and had periodic attacks of nose-bleeding until the age of 22 years, the nasal hæmorrhages occurring about every 26 days, and at this time she suffered from temporary enlargement of the glands of the neck, particularly those below the angle of the jaw, and from a mild sore throat. During the first year of her married life she vomited blood twice and gained 22 pounds in weight. She had never had bleeding from the vagina and stated that her sexual relations were perfectly congenial. Vaginal examination disclosed practically the same condition as described under Case 1, except there was no evidence of a previously existing hymen, the vagina was four and one eighth inches long, and the pubic region was covered with black hair.

CASES 4 AND 5.—I have learned through the courtesy of the late Dr. H. C. Bacon of two women, about the age of 40 years, cousins, now married, and neither of whom ever menstruated. These women were decidedly feminine in stature and in sentiment, while in both sexual congress was accompanied by the normal sensations. In both of Dr. Bacon's unreported cases vaginal examination showed the external genitalia and the vagina to be normal and an absence of the uterus.

Philadelphia.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON A CASE OF RUPTURE OF THE ROOT OF THE LUNG WITHOUT INJURY TO THE CHEST WALL.

BY HELEN CHAMBERS, M.B., B.S. LOND.,
CLINICAL PATHOLOGIST TO THE ROYAL FREE HOSPITAL.

WITH reference to the case of extensive rupture of the trachea with complete detachment of the left bronchus published in THE LANCET of Dec. 1st, 1906, p. 1509, the following case of a somewhat similar injury may be of interest.

A well-nourished girl, aged five years, whilst crossing the road and carrying another child slipped and fell forwards. The wheel of a large four wheeled van passed over her back. She was brought in dead to the casualty department of the Royal Free Hospital. At the post-mortem examination superficial abrasions of the skin and slight bruising on the back suggested that the wheel had passed obliquely from the right shoulder downwards to the left, crossing the spine at the level of the twelfth dorsal vertebra. There were no other external signs of injury except a few abrasions on the upper limbs and in the left temporal region. There was no surgical emphysema or pneumothorax. The left pleural cavity contained eight ounces of blood. The root of the left lung had been torn across. The tear resembled an incised wound and extended through the main bronchus and vessels, including all the structures of the root except a thin strand of pleura and a nerve. The lung was lying almost free in the pleural cavity. The left lung showed a laceration in the upper lobe parallel to, and about one inch above, its lower border. It was half an inch deep at the upper end and at the lower end extended completely through the lung substance, exposing the pleura on the posterior surface. The tissues at the margins of the laceration showed only slight bruising. The right pleural cavity contained three and a half ounces of blood. The root of the right lung was uninjured. The apex of this lung was nearly completely torn off, being attached posteriorly by a strand of lung tissue. The rest of the lung showed some bruising. Both lungs were of normal size. The trachea was uninjured but contained some blood-stained fluid. There was slight extravasation of blood in the posterior mediastinum. The pericardium was normal. The heart was empty and firmly contracted. The left ventricle was slightly bruised on the anterior surface. The spleen

showed a shallow laceration. The other abdominal viscera were normal. There were no fractured ribs or injury to the spinal column.

The chief feature of this case is the extensive injury to the lungs, including complete detachment of one of them, in the absence of any fracture of the ribs or spine.

Mortimer-street, W.

NOTE ON A CASE OF ANGIO-NEUROTIC ŒDEMA OF THE LARYNX.

BY CHARLES BIRCH, M.R.C.S. ENG., L.R.C.P. LOND.,
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THIS case is of interest, I think, from the following points of view. In the first place, the recorded cases of angio-neurotic œdema of the larynx are, so far as I can discover, few in number. Secondly, it is of interest from the point of view of diagnosis. And, thirdly, the resemblance in some respects of the symptoms caused by this condition and bronchial asthma.

The patient was a boy at Clayesmore School, aged eight years. He went to bed on Oct. 11th apparently in his usual state of health. At 12 o'clock he woke up and called to the nurse, who slept in a room adjoining the dormitory in which the boy was sleeping. He complained of a tickling in his throat and pain on swallowing. The temperature was 99° F. As there was nothing in his condition to cause the nurse any alarm she gave him something hot to drink and he went off to sleep. At 2 A.M. the nurse was wakened up by hearing a choking sound. She went and looked at the boy. He was breathing rapidly, looked flushed, and his temperature was 102°. He complained of his throat hurting him. He vomited but complained of no abdominal pain. He was moved out of the dormitory into a room by himself and I was sent for.

At 4 A.M. I saw the boy. He was then in a most alarming condition. His face was pale and cyanosed and he was tossing about in bed struggling for breath. The alæ nasi were working. There was stridor on respiration, suggesting laryngeal obstruction. The respirations were 28, the pulse was 140, and the temperature was 102°. There were considerable over-action of the respiratory muscles and sucking in of the intercostal spaces. On auscultation of the chest there were no adventitious sounds. On examining his throat there was a very little general inflammation of the tonsils, soft palate, and back of the pharynx. No enlarged glands could be detected in the neck. It struck me that this was probably the beginning of a case of diphtheria. I therefore immediately injected 2000 units of diphtheritic antitoxin into the abdominal wall. I took a swab from the throat for examination and gave him a teaspoonful of vinum ipecacuanhæ; this gave him considerable pain to swallow and shortly made him vomit. Not being at all satisfied with the case I asked Mr. N. H. Joy, the medical officer to Bradfield College, to come over and consult with me. He saw the patient about 8 A.M. and formed the opinion that it was probably an early case of diphtheria. The boy was isolated. During the day the breathing gradually got easier and the cyanosis and restlessness passed away. At 6 P.M. he was breathing quite comfortably; he could swallow liquids without trouble, his face was flushed, and he was sweating considerably. The temperature was 103°. The tonsils were now a good deal swollen, but there was no change in the appearance of the pharynx.

On the following morning, after a good night, the patient was apparently in his usual state of health, though his temperature was still raised. The swelling of the tonsils had subsided. Another swab was taken from the throat; both this one and the one taken on the previous day turned out to be negative. There was no cough or discharge from the throat or nose throughout the attack. His recovery was uninterrupted.

I am afraid that the diagnosis of this case was based chiefly on the elimination of other diseases and conditions which could give rise to the signs and symptoms met with in this case. With regard to diphtheria there was no trace of any membrane. The result of the examination of both swabs was negative. And although there were half a dozen boys sleeping in the same dormitory there have been no cases of diphtheria either before or after. Since the beginning of the term the village has been "out of bounds" for the school, so that there was no chance of this boy having been exposed to any infection that the other boys had not been exposed to.

The condition of this patient when I first saw him in some ways resembled a person in an attack of bronchial asthma; the chief differences were: instead of the chest being fixed there was excessive movement, the high temperature (it was 102° and only became normal at the end of the second day), and the absence of all expectoration. Nevertheless, I think there is probably a close connexion between the condition described and bronchial asthma. If we follow the theory of Traube, that the attack (of asthma) is due to the swelling of the bronchial mucous membrane, it is quite reasonable to expect that a swelling (œdema) of the trachea or larynx would give rise to signs very similar to those seen in bronchial asthma. As a matter of fact, this patient has a fairly strong family history of asthma, both his maternal and paternal grandfathers having suffered from this disease.

Whitchurch, Reading.

Medical Societies.

OPHTHALMOLOGICAL SOCIETY.

The Pupillary Membrane.—Sarcoma of the Choroid.—Total Avulsion of Iris with Retention of Vision.

A MEETING of this society was held on Dec. 13th, 1906, Mr. PRIESTLEY SMITH, the President, being in the chair.

Mr. E. TREACHER COLLINS described the macroscopic and microscopic appearances of an Adhesion of a Persistent Pupillary Membrane to the Cornea in the Eye of a Cat, and compared these with four other recorded cases of a similar nature. It was suggested that they might be divided into three classes with the following characteristics: (1) A cicatrix of a perforating ulcer of the cornea, with the pupillary membrane attached to the scar (Wintersteiner); (2) a cornea in all respects normal, except for a defect in the endothelium on its posterior surface at the seat of attachment of the pupillary membrane (Collins, Ballantyne); and (3) a cornea in all respects normal, except for an absence of Descemet's membrane and its lining endothelium at the position where the substantia propria and pupillary membrane become blended (von Hippel). The case, the subject of this communication, came under the third heading. In Class 1 the cause of the adhesion was undoubtedly inflammatory in origin. In the cases belonging to the other two classes there was an absence of all signs of past or present inflammatory changes, and in some of the eyes there were other congenital malformations which could not be inflammatory in origin. The balance of evidence in them would seem to be strongly in favour of the abnormality being due to an arrest of development, in Class 2 the arrest occurring in the differentiation of the mesoblastic tissue posterior to the hyaline layer of Descemet's membrane into endothelium and pupillary membrane, and in Class 3 the arrest occurring in the formation of a partition of the hyaline layer and the differentiation of the mesoblastic tissue between the lens and surface epithelium into two parts.

Mr. L. V. CARGILL and Mr. M. S. MAYOU described a case of a Flat Sarcoma of the Choroid. The patient, a man, aged 61 years, was first seen in August, 1904, when he complained of failure of sight of the left eye. At the outer side of the macula was a patch looking like an area of choroido-retinitis. The retina had an œdematous appearance and at the lower border of this area were some dark choroidal pigment spots, with other spots less pigmented; the patch was not definitely elevated but there was a scotoma corresponding to it; the vision was $\frac{6}{18}$. The right eye was normal. In spite of warning the patient did not show himself for a year and then the retina was partially detached, with much pigment along the border of the detachment. Vision was $\frac{6}{24}$. The use of Leber's transilluminator rendered the diagnosis of tumour certain. He was not again seen until March, 1906, when he had secondary glaucoma. Tension was + 2 and the vision equalled perception of light. The eye was removed and a funnel-shaped detachment of the retina was present. In the outer half of the globe there was a flat, darkly pigmented growth. In the region of the ora serrata it was raised and tended to spread in a

ring-like manner. The optic nerve and sclera were not involved. The growth was strictly limited to the choroid and was composed of spindle cells with no alveolar arrangement and a few large chromatophores. Anteriorly it showed well marked signs of degeneration necrosis; there were also some small hæmorrhages.

Dr. CECIL E SHAW (Belfast) read notes of a case of Perforating Wound of the Eyeball, with complete destruction of the iris and retention of vision. The patient was an engine driver, aged 37 years, who was removing the tyre of a bicycle, when the wrench, which he had inserted under the edge of the tyre, slipped and flew out, striking the right eye and cutting the cornea from edge to edge a little below the centre. The anterior chamber was filled with blood and when, after some days, this cleared off it was seen that the iris had completely disappeared, leaving the lens in place but evidently injured at its lower edge, from which a few opacities spread through its lower third. These showed no tendency to increase. The wrench was a particularly sharp and rough-edged one and probably caught the iris and tore it out. All signs of irritation passed off in about a month but some floating opacities remained in the vitreous. The man was able to return to his work in six weeks with vision $\frac{6}{9}$ partly in the injured eye.

EDINBURGH OBSTETRICAL SOCIETY.

Complications of Pregnancy.

A MEETING of this society was held on Dec. 12th, 1906, Dr. N. T. BREWIS being in the chair.

Dr. BREWIS read a paper on two cases of Pregnancy complicated by Fibroid Tumours and treated by Hysterectomy. The first patient was 37 years of age and had suffered from dysuria along with severe pain in the back and abdomen. On examination about the fifth month a tumour was felt to the left of the gravid uterus in the abdomen and it extended down into the pelvis, almost entirely filling up the cavity. As the patient's general condition was becoming less favourable and pressure symptoms were arising the child was removed by Cæsarean section. The tumour was then found to be growing from the posterior wall of the supravaginal portion of the cervix and supravaginal hysterectomy was performed. The second patient was 33 years of age and had been married for ten months. Pregnancy complicated with a fibroid tumour had been recognised and she was kept in bed for many weeks. When labour set in Cæsarean section was performed and a small but fully developed child was delivered. A fibroid tumour of the size of a cricket ball was shelled out from the left side of the lower uterine segment and from under the bladder, but as another tumour was found in the fundus supravaginal hysterectomy was performed. The child survived and the mother made an uninterrupted recovery.

Dr. J HAIG FERGUSON read notes of a case of Complicated Labour in a Primipara with One Kidney. The patient was 36 years of age and nine years previously to her pregnancy her left kidney had been removed for tuberculous disease, the symptoms having lasted for 12 months before the operation. At the time of admission to the Maternity Hospital her urine was found to be scanty and contained two grains of albumin and four grains of urea per ounce; there was considerable anasarca of the lower half of the body. Her pelvis was found to be much contracted transversely and was of a kyphotic type; her diagonal conjugate was slightly under four and a half inches. Milk diet and rest in bed increased the quantity of urine to 50 or 60 ounces, the albumin decreased to 0·4 grain per ounce, and the urea varied between 2½ and 4 grains per ounce. It was decided to induce labour; at first a bougie was inserted but the result was unsatisfactory, so a Champetier de Ribes bag was inserted with much better results. After dilatation of the os forceps were applied but the head was too large and too fully ossified to pass through the pelvic brim. Craniotomy was then performed. There was partial placenta prævia and it was adherent. The puerperium was uneventful; the albumin steadily diminished and eventually disappeared. Dr. Ferguson then discussed the bearing of nephrectomy on pregnancy. He said that after the operation a certain time, say, three years, should be allowed to elapse before marriage was entered on, so as to allow the other kidney safely and easily to do the work usually undertaken by two. If the remaining kidney was diseased marriage should be forbidden.—The PRESIDENT, Dr. JAMES RITCHIE, and Dr. F. PORTER discussed the paper.

Dr. T. GARNET S. LEARY (Tyrone) contributed a paper on the Successful Treatment of Puerperal Fever by Antistreptococcic Serum which was read by the Secretary. Details were given of five cases of puerperal fever in which, in addition to douching and other treatment, antistreptococcic serum had been used, and it was considered with benefit.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—A meeting of this society was held on Dec. 14th, 1906, Dr. E. Cautley being in the chair.—Mr. Leonard S. Dudgeon, in opening a discussion on Rickets, dealt with the etiological aspect and discussed the lactic acid and the lime theories, the experiments of Mr. Bland Sutton, and finally the recent work of Dr. D. Chalmers Watson on young rats. The mothers of these rats prior to pregnancy were fed on ox flesh, which diet was given to the young animals after weaning. Macroscopical changes in the bones resembling those of rickets were found but the microscopical appearances were not identical. He also mentioned that in all cases of status lymphaticus changes occurred in the bones resembling those of rickets. He considered that at present there was no ground for the discussion of a toxic theory.—Dr. F. J. Poynton, in dealing with the symptoms and diagnosis, remarked that rickets was a constitutional disease beginning insidiously during the first two years of life. He criticised the statement that the bones were tender in rickets. Fractures he considered to be less common than was usually supposed. Head-nodding was due to local irritation from the teeth or ears, &c. Craniotabes was commonest in syphilitic rickets. Hirschgasser found rickets in 89 per cent. of cases of laryngismus stridulus and in 79·8 per cent. of tetany. A convulsion in a rickety child might be the beginning of true epilepsy. He believed that fœtal rickets did exist, and suggested a discussion as to whether late rickets was a true rickets and, if so, was it a relapse of early rickets or did it develop *de novo?* Under diagnosis he alluded to latent syphilitic rickets, achondroplasia, and osteogenesis imperfecta, the last characterised by its congenital origin, by the frequency of fractures, by the softness of the bones, and by the failure of antirachitic and antisyphilitic remedies.—Dr. W. A. Milligan in dealing with the morbid anatomy and pathology of the disease discussed the various experiments on animals performed with a view to discover the essential pathology of rickets and pointed out that no definite result had yet been obtained. The changes in the spleen, liver, and lymphatic glands were described and the remarkable absence of changes in the nervous system was alluded to.—Mr. H. Botham Robinson, speaking of the surgical aspect, made special reference to genu valgum and to the change in the tibia as described by Morton of Bristol. This tibial curve required that a wedge should be removed from the bone, by which operation the line of the knee-joint was kept straight and the vertical line of pressure passed downwards through the tibia. Whatever operation was performed an associated coxa vara was often an impediment to a satisfactory result.—Dr. R. Hutchison, in discussing the treatment, emphasised the importance of fat in the diet; he recommended to children above one year oat flour, which was rich in both fat and proteid, also half the yelk of an egg daily. Raw meat juice was specially indicated in anæmic cases but in children over 18 months pounded underdone meat might be given instead. Fresh air and good general hygiene were valuable. In medicinal treatment cod liver oil took the first place on account of its being an easily digested form of fat and he considered that an emulsion of cotton-seed oil with oleic acid gave equally good results. Iron was useful in cases of anæmia. Phosphorus was given dissolved in oil and it was possible that any benefit derived might be due to the vehicle; it might be dangerous if not thoroughly dissolved. In his opinion lecithin was not superior to yelk of egg, of which it was the chief constituent. Loss of appetite was best combated by change of air. In bronchitis cough mixtures should be avoided if possible. Diarrhœa was prevented by warm clothing to the abdomen and legs and by small doses of opium.—The discussion was continued by Dr. Cautley, Dr. T. R. C. Whipham, Mr. G. Pernet, Dr. Morrison, and others.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Dec. 19th, 1906, Mr. E. Powell, the President, being in the chair.—Dr. F. H. Jacob read a paper on the Diagnosis of Mediastinal Tumours.

After showing a man, aged 36 years, whose symptoms pointed to the existence of a large central mass of new growth, with a considerable deposit in the basal portion of the left lung and two smaller but more deeply situated nodules in the right lung, Dr. Jacob traced the history of the case. When first seen there were merely dulness, bronchial breathing, and a few râles at the left base; since then a somewhat general bronchitis had developed as well as a systolic murmur over the dull area when respiration was suspended. Although the occurrence of a murmur suggested aneurysm, examination with x rays proved that none of the tumours had the well-defined limits of aneurysm and did not pulsate. Slight inspiratory stridor also appeared and a little cough. Eight other cases were then described and compared together with preparations of the viscera from some of them. The most important diagnostic points were: (1) the sputum, which in a typical case might be termed catarrhal and consisted of pearly granules suspended in a clear mucus; microscopically it contained numerous spherical cells with eccentric nucleus and no tubercle bacilli; (2) dulness of the chest with pleurisy; and (3) a normal temperature. The last was inconstant and so were loss of flesh and the occurrence of secondary growths. Other symptoms commented on were facial congestion, venous dilatation, collapsed lung with retraction of chest-wall, paroxysmal cough, orthopnœa, and occasionally interference with the pulse during inspiration. Invasion of the cardiac region accounted for attacks of faintness, which might occur at any stage of the disease. In one case the diagnosis was made more difficult by the presence of pulmonary tuberculosis, tubercle bacilli being detected. It was believed that the tumour was a tuberculous abscess and the sputum was decidedly purulent. In another case sudden and absolute paraplegia occurred one night and the growth, a soft spindle-cell sarcoma, was found to have invaded the vertebræ and a sudden and copious hæmorrhage must have occurred within the spinal canal. In a third case marked improvement had followed the use of x rays, though it was highly improbable that a fatal result would be thereby prevented.—The paper was discussed by Dr. C. H. Cattle, Dr. R. Alderson, and Mr. W. B. Blandy.—Dr Jacob, in reply, emphasised the fact that the only definite proof of aneurysm was pulsation and this was best demonstrated by x rays.—Dr. Cattle showed a mediastinal tumour from a man whose case he had watched during life. In addition to orthopnœa and inspiratory stridor there was dulness at the base of both lungs. Dilated veins were obvious on the left side of the chest There were no cardiac or aneurysmal symptoms. The left vocal cord was paralysed and three and three-quarter pints of blood-stained fluid were aspirated from the left pleural cavity. Microscopically the tumour proved to be a squamous-celled epithelioma, though there was no evidence of its origin in the œsophagus; indeed, macroscopic appearances suggested the trachea as its primary site, though the growth did not bear this out by exhibiting columnar cells.—Dr. A. J. Sharp read a paper on Measles: its Mortality, Complications, and Sequelæ A review of 65 cases showed a death-rate of 23·44 per cent. The average age of 13 fatal cases worked out at 1·96 years. Of 48 recovered cases (including two adults) the average age was 4·49 years. Of 46 recovered cases (all being under 11 years and excluding two adults) the average age was 3 51 years. There was no case in the series of the disease occurring in a child of less than six months and the susceptibility to infection appeared to be very slight up to this age. Measles shared with whooping-cough the fourth or fifth place in children's diseases in point of annual loss of life.

ROYAL ACADEMY OF MEDICINE IN IRELAND.—A meeting of the Section of Medicine was held on Dec. 7th, 1906, Dr. Joseph M. Redmond, the President, being in the chair.—Dr. George A. Gibson (Edinburgh) read a paper entitled "Our Debt to Ireland in the Study of the Circulation." He said that from his earliest days the heroes of medicine in Ireland had always been the objects of his worship. The first of the medical works produced by Ireland which had come into his possession was a copy of the first edition of Graves's immortal lectures, and he believed that for felicity of diction, breadth of view, and originality no other clinical lectures could be compared to them. Another Irish book of similar lucidity, greatness of view, and originality was the work of Dr. Stokes on the Heart. It was, he averred, the greatest book on the heart that had ever been published and still stood absolutely without parallel. In that book Stokes coined the term "embryocardia" 50 years before it passed into currency, and he did more for the study of aneurysm than any of his predecessors. Long before Oertel, Stokes had enunciated the advantages of exercise in the treatment of heart disease and other methods of treatment which had slowly filtered into the minds of the medical profession since. Amongst numerous books and papers, all of great value, Dr. Gibson instanced the papers by Sir Dominick Corrigan on aortic disease as marking a great advance, little having since been added to the information contained in them. Amongst isolated papers upon cardiac disease perhaps the most valuable that had ever been published was one by the celebrated Adams, which appeared in the fourth volume of the Dublin Hospital Reports. Many of his friends had been in the habit of attributing to John Hilton the observation that when pericarditis followed on acute rheumatism the cause of the exudation, whether it was fibrinous or liquid, was that the heart was always in movement; but that had been expounded by Graves long before. In looking through old files he had been struck with the fact that little had been written on angina pectoris and he was inclined to hope that Ireland escaped that fell malady more than the sister islands. In other respects Graves and Stokes had led the way with regard to much that was now known. Somewhere in the "thirties" there was noticed a case of paralysis of a leg due to arterial obstruction—a forerunner of the views now enunciated as to intermittent claudication. A host of continental observers had studied the question of the causes of murmurs, but the results of their observations were practically all embraced in Corrigan's comprehensive work. Adams, in 1827, anticipated a good deal of subsequent work as regards the effects of mitral obstruction on the chambers of the heart, and Hayden and others during the third quarter of the last century did almost all the work of importance on the subject of cardiac murmurs. Even so far back as 1772 M'Bride's "Practice of Physic" showed that slowness of the pulse in fatty disease of the heart was then known. Bellingham undoubtedly conceived the modern treatment of aneurysm by dietetic and physical means. With the aid of lantern slides Dr. Gibson exhibited a series of tracings from his own studies in heart block. The slides showed the features during life and the pathological condition after death and it might, he held, be taken that heart block was proved by the auricular sounds heard in the intervals between the apex pulsations.—The thanks of the Academy were conveyed to Dr. Gibson by the President, who was followed by Professor J. M. Finny, Professor J. Little, Sir John W. Moore, and Prof. W. H. Thompson.

BRITISH BALNEOLOGICAL AND CLIMATOLOGICAL SOCIETY.—A meeting of this society was held on Dec. 13th, 1906, Mr. H. Shirley Jones (Droitwich), the President, being in the chair.—The President and Dr. Frederic Bagshawe (St. Leonards) spoke of the great loss which had recently been sustained by the society through the death of Dr. E. Symes-Thompson and of Dr J. G. Douglas Kerr (Bath), both of whom had been presidents of the society.—Dr. Leonard L. B. Williams read a paper entitled "The Treatment of Gout by the Ingestion of Common-salt-containing Waters." After a brief *résumé* of the salient points of Widal's work in reference to the effect of common salt in cases of renal inadequacy, he went on to say that inasmuch as gouty people were for the most part potentially inadequate in the matter of renal excretion, it was unwise to send gouty patients to salt water spas. He had made out a table showing the contents in common salt of some of the more popular spas and he held that certain spas, notably in Germany, such as Kissingen, Homburg, and Wiesbaden, were unsuited to the treatment of gout when regarded from this point of view. He further expressed the opinion that inasmuch as the bowels were only accessory excretory organs where the products of nitrogenous metabolism were concerned the wiser course was to send gouty patients to those spas such as Contrexéville, Vittel, and Evian, whose waters were known to exercise a stimulating effect upon the kidneys, which constituted, after all, the normal physiological route for the discharge of nitrogenous waste.—The President remarked that simple waters given in large quantities and without sufficient interval did not give the diuretic effect produced by moderate quantities and he believed this to be all the more true in cases of waters containing large quantities of sodium chloride. With due care in prescribing saline baths and waters an early increase in the flow of urine and a corresponding decrease in the gouty manifestations were usually found. There were no cases so

hopeful as those which showed this early diuretic action.—Dr. Ernest Solly (Harrogate) said that whatever theoretical objection there might be to the use of salt-containing waters in gout there was no doubt that the practical experience of a multitude, both of medical men and patients, proved that these waters were beneficial in gout. His own experience was that, leaving out acute cases, for which Harrogate waters were never recommended, all ordinary cases of gout were benefited by the strongest saline water of Harrogate, if only precautions were taken to secure from the first a thorough, though not drastic, aperient action—this being often most satisfactorily obtained by a preliminary dose of euonymin or some other simple hepatic stimulant and by the administration of sufficiently copious doses of the water.—Dr. A. P. Luff said that he could not agree that all gouty patients should be debarred from taking mineral waters containing sodium chloride. In those cases in which gross renal inadequacy existed it was right to forbid the use of such waters, but in other cases the waters were of great value to gouty patients as stimulants of hepatic metabolism.—Dr. C. W. Buckley (Buxton) said that he agreed with Dr. Luff's opinion that the kidneys were not the only organs to be considered and that the function of common salt-containing waters was to act upon the liver, but he held that even the slightest renal inadequacy contra-indicated them.

CHELSEA CLINICAL SOCIETY.—A meeting of this society was held on Dec. 18th, 1906, Mr. J. F. Palmer being in the chair.—Dr. T. V. Dickinson read a paper on Some Pathological Aspects of Old Age. "Old age" was characterised by certain physiological changes in the bones, cartilages, and other tissues and organs; the term "senility" was usually employed to denote those more distinctly pathological changes which sometimes took place in the circulatory, urinary, and nervous systems. These two conditions were not necessarily synchronous. Out of 100 male subjects between the ages of 60 and 70 years Létienne found 70 normal and only 30 showing the pathological signs of senility. All these changes had their origin in that condition of the vascular system which was called arterio-sclerosis, the effects of which were chiefly manifested in the heart, the brain, and the kidney. This was formerly supposed to be a necessary accompaniment of old age, but Humphry had shown from the returns of the Collective Investigation Committee that in the majority of cases the arteries presented a healthy condition in old age. In 262 persons at 70 years of age the pulse was compressible in 208 and incompressible in only 53. The condition being thus shown to be morbid, what was its cause? Brault considered endarteritis to be the primary lesion, while Loeper thought this was secondary and due to some previous calcification and sclerosis. Errors in metabolism and nutrition played, no doubt, an important part and many conditions, such as gout, rheumatism, diabetes, and syphilis, had been supposed to contribute to it. The experiments of Barazzoni appeared to show that tobacco had a distinct effect in raising the blood pressure and increasing tension. The prevalence of arterio-sclerosis among herbivorous animals seemed to negative the suggestion that it might be the result of a meat diet. The attempts to produce it by the inoculation of toxins and microbes had been practically negative in their results, the only exception being a limited lesion with a para-coli bacillus. Arterial calcification had been produced by the injection of adrenalin, but not genuine arterio-sclerosis. There were, therefore, three problems which still remained to be solved: (1) Are atheroma and arterio-sclerosis the result of prolonged direct irritation by poisons of the arterial coats apart from hypertension? (2) Is calcification caused by different poisons from those which produce arterio-sclerosis? and (3) What are those poisons which come in old age to prevail in our blood and bring about those lesions?—Mr. J. Howell Evans also read a paper on Operable and Inoperable Pelvic Cancer.

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Dec. 7th, 1906, Dr. J. Lindsay Steven, the President, being in the chair.—Dr. John Rowan showed a man, aged 25 years, with Ectropion of the Lower Lids of Both Eyes, following a burn with molten lead. The projecting conjunctiva was rough and granular and there were numerous corneal opacities. The condition was worse in the left eye and with it he could hardly tell light from darkness. The case was simply treated by touching the inner surface with "blue stone" once a week.—Dr. F. J. Charteris read a paper on Heart Block and demonstrated illustrative tracings from a typical case in a man, aged 71 years. His symptoms were attacks of giddiness of three years' duration. The pulse-rate averaged from 28 to 30 beats in the minute with occasional drops to from 8 to 14 beats. Tracings of the venous pulse in the internal jugular showed that the auricles were beating at a rhythm independent of that of the ventricles—generally two auricular for each ventricular contraction. The auricular beat did not occupy any definite relationship to that of the ventricles as the ventricular contraction came in at varying positions in the tracing, most frequently occurring during the auricular pause. This interpretation was confirmed by x ray examination. Epileptiform attacks developed and were associated with a further slowing of the pulse. When the intermissions of the radial pulse exceeded 15 seconds an epileptiform attack followed. The longest intermission noted was 35 seconds. During one period of five hours eight of these attacks were counted and Cheyne-Stokes respiration supervened. The respiratory changes came on independently of the intermissions of the pulse.—Dr. Carstairs C. Douglas read a paper on the Pancreatic Reaction of the Urine and other Associated Means of Diagnosing Disease of the Pancreas. Having pointed out the fallacies and difficulties of former tests, he described Dr. Cammidge's latest test which was considered to be of great practical value. Notes of cases were read where diagnosis had been aided by this test. The methods of fat analysis of the fæces and of detection of muscle fibres in the stools were also described and their merits discussed.—Dr. R. Kerr of Morocco read a paper on Some Prevalent Diseases in Morocco, referring mainly to malarial fever, syphilis, and small-pox. He described epidemics of syphilis where the disease was spread by flies which had been feeding in the open sores of a syphilitic patient.

LARYNGOLOGICAL SOCIETY OF LONDON.—A meeting of this society was held on Dec. 7th, 1906, Dr. J. B. Ball, the President, being in the chair.—Sir Felix Semon showed a case of Syphilitic Pachymeningitis, with paralysis of the right half of the tongue, the right half of the palate, and abductor paralysis of the right half of the larynx.—In a case of Nævus involving the left half of the fauces and of the pharynx, shown by Dr. J. Dundas Grant to ascertain the views of those present as regards treatment, in which the condition had given rise to no discomfort or hæmorrhage, the President, together with Dr. F. W. Bennett and Dr. H. W. Fitzgerald Powell, counselled leaving it alone.—Dr. H. J. Davis showed a man, aged 44 years, who had been ill for six weeks with stridor, retraction of the ribs, slight dysphagia, and the aperture of the larynx almost occluded by infiltration of the arytenoids. The diagnosis rested between syphilis, tuberculosis, and malignant disease and opinions were divided.—Dr. G. C. Cathcart showed a professional singer with a very large Laryngeal Cystic Tumour situated over the left arytenoid region and extending along the aryteno-epiglottidean fold which was pushed over the ventricular band of that side.—Sir Felix Semon advised that it should be snared off *in toto*.—Dr. W. Jobson Horne expressed a caution against using a snare which could not be made hot if necessary. He advised the use of an electric snare to be applied cold and the current to be connected at the last moment when the wire had been drawn home. In this way the minimum amount of injury was done to adjacent tissue.—The President showed a case of a Cyst situated on the Floor of the Anterior Part of the Right Nasal Passage. Opinions were in favour of it being dental in origin.—Dr. H. Lambert Lack showed a patient in whom Jacobson's Organ was Persistent.—Dr. Scanes Spicer showed a child, aged three years, the subject of Achondroplasia and also a case of Chronic Infiltration of the Larynx.—Dr. Herbert Tilley showed a patient with Chronic Œdema of the Face, commencing at the sides of the nose, spreading out over the cheeks, and extending upwards on to the forehead.—Mr. H. Betham Robinson said that he had been accustomed to regard such cases as chronic lymphangitis and advised the use of antistreptococcic serum.

LIVERPOOL MEDICAL INSTITUTION.—A pathological meeting of this society was held on Dec. 13th, 1906, Mr. F. T. Paul, the President, being in the chair.—Dr. J. R. Logan showed a Section of Molluscum Contagiosum which had been removed from the scalp of a baby who was aged six months. Two growths were present, each being of the size of a walnut.—Dr. T. R. W. Armour exhibited a Section of Early Scirrhus of the Breast cut in the operating theatre. The process took eight minutes and was

of great value in determining the extent of the operation.—Dr. E. E. Glynn showed a specimen of Bronchiectasis with extensive Pulmonary Emphysema and also one of Congenital Pulmonary Stenosis with Infective Endocarditis and Pulmonary Embolism.—Mr. C. Thurstan Holland and Mr. W. Thelwall Thomas communicated a note on Calculi removed from the Kidneys and Ureters. 24 specimens removed during the last two years were shown and the radiographs were demonstrated by means of an illuminated screen.—Mr. D. Douglas Crawford read a paper on the Surgical Anatomy and Development of the Prostate, especially in relation to senile enlargement. The paper was illustrated by lantern slides.

PATHOLOGICAL SOCIETY OF MANCHESTER.—A meeting of this society was held on Dec. 12th, 1906, Dr. A. Hill Griffith, the President, being in the chair.—Professor A. H. White (Dublin), in opening a discussion on Opsonins, related the results of his experiences of inoculation on the lines laid down by Wright, and explained the necessity of repeated blood examinations in order (*a*) to regulate the size of the dose and thus to eliminate the negative phase effect as far as possible; and (*b*) to determine the length of time its effects lasted. He detailed the effects of surgical procedure on the opsonic index and showed how clinical improvement following a surgical operation where only a part of the disease was removed was coincident with a rise of opsonic index, and that relapse with involvement of a fresh area resulted when a fall in index occurred. Moreover, he showed that such cases might be completely cured by inoculation, as soon as the opsonic index fell, of suitable and properly interspaced doses. He illustrated his remarks with numerous curves.—Dr. G. E. Loveday showed that an attempt to find a small dose of tuberculin which could be used empirically in all cases failed. Different doses of T.R. had very different actions in the same person. A very small dose might give a curve of opsonic indices very similar to that obtained by too large a dose. In some cases it was really too large and still smaller doses were required, while in others a larger dose gave satisfactory results. There was an optimum dose for each patient only to be determined by frequent observations of the opsonic index.—Dr. A. Ramsbottom discussed the therapeutic use of inoculations of staphylococcal vaccine in certain common affections and emphasised their value in cases of furunculosis and the severer forms of acne, where the pustular eruption was plentiful and the individual pustules were large, in contrast to the milder cases of acne consisting of a "few spots on the face" which did not seem to yield so readily to this treatment. In quoting the actual cases treated stress was laid on the fact that the opsonic index, before treatment, in the cases of furunculosis and the severer forms of acne was below normal, whereas in the milder forms of the latter affection the index was about, or just above, normal.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held at Manchester on Dec. 14th, 1906, Mr. R. Favell, the President, being in the chair.—The President mentioned a case marked by abdominal pain and swelling during pregnancy which continued after labour at term. Five gallons of blood-stained fluid were drawn off 14 days after labour and a few days later a ruptured tumour of the right ovary was removed; it was a very cellular malignant growth, probably of endothelial origin.—Dr. D. Lloyd Roberts (Manchester) showed a Round Interstitial Fibroid removed by supravaginal hysterectomy.—Dr. J. E. Gemmell (Liverpool) mentioned a case of Double Fibroma of the Ovaries complicating Pregnancy in a primipara, aged 32 years. An operation was performed for twisting of the pedicle of the right ovary, which contained no ovarian tissue. The left ovary contained a corpus luteum and a fibroma of the size of a small orange and was also removed. Pregnancy continued undisturbed.—Dr. A. W. W. Lea suggested that enucleation might have sufficed in the left ovary, as ovarian tissue remained.—Dr. William E. Fothergill expressed the opinion that all solid tumours of the ovary should be removed entire, as he had found a proportion of a series of so-called fibromata of the ovary to be malignant growths.—Mr. E. Stanmore Bishop (Manchester) described a case of Cæsarean Section, in which iodised catgut was used for suturing the uterine wall and recommended the use of this material.—Dr. E. O. Croft (Leeds) showed a Fibroid which had completely blocked the pelvis and was removed during pregnancy without interrupting its course. Removal was effected by division of the broad pedicle, after which the incision was closed by buried silk sutures.—Dr. J. de Ville Mather (Manchester) presented statistics based on 45 cases of cancer of the cervix showing that malignant disease was generally preceded by chronic metritis or by fibromata. He therefore advocated more frequent removal of the uterus for these conditions, arguing that their pre-cancerous character was an additional ground for their radical treatment.

Reviews and Notices of Books.

The Inflammation Idea in General Pathology. By W. H. RANSOM, M.D. Lond., F.R.S., F.R.C.P. Lond., Consulting Physician to the General Hospital, Nottingham. London: Williams and Norgate. 1905. Pp. 354. Price 7*s.* 6*d.*

IN the heterodox and somewhat prolix book before us Dr. Ransom has endeavoured to formulate the conception of inflammation so as to include the responses to "injurious irritation" in all living organs and thus to invest this process with a wider significance than is usually attributed to it. To give a satisfactory definition of what exactly is included under the process of inflammation has always presented difficulties to the pathologist. Being applied originally to the conditions underlying and producing certain clinical phenomena in man, it was found on investigation that these conditions were so complex, and varied to such a degree with the cause, the situation, and the organism, that a concise presentation of the nature of the process became a matter of the greatest difficulty. It is, therefore, no surprise to find that many of the definitions given are unsatisfactory. Dr. Ransom's object, he tells us, was to remove some of the grounds of the confusion prevalent in the present doctrines regarding inflammation and to connect the known phenomena into one intelligible conception in a general pathology. He attempts to define inflammation in such a way that it shall include the response to "injurious irritation" in all living organisms, whether animal or vegetable, and therefore confines himself almost entirely to the cellular changes, since the vascular changes can only be present in a limited number of organisms, and if their importance to the process is to be insisted on it is obvious that no such general idea of inflammation can be evolved. For Dr. Ransom, therefore, the essential factor in inflammation is injurious irritation, which he defines as "a cryptic change of the living substance of a cell which injuriously modifies but does not arrest, and often increases, its local vigour of growth and proliferation." His main thesis is that inflammation is never a beneficial process to the organism, but that it is rather to be regarded as a perturbation or disorder of the normal processes of repair induced by some irritant, whether parasitic, chemical, or physical.

Repair comprises all those evolved normal processes by which all living organisms make good waste and heal injuries. These processes are always purposive and beneficial to the organism. In inflammation as defined by Dr. Ransom we have these reparative responses to injury modified, misdirected, or perturbed by the injurious irritation of some external or extraneous irritant, and these modified responses, so far from being fitly related and beneficial to the injured organism, are usually injurious and show rather an adaptation to the irritant, more especially if that is of parasitic nature. Inflammation is thus to be regarded as a perturbation of repair, indeed as hindering repair, which can only occur after the irritant has ceased to act, the modified form of repair then obtained being referred to as recovery after inflammation. Further, malformations and teratological processes are to be regarded as abnormalities of repair which are not primarily due to an injurious irritation, although such may co-exist as a factor. Thus

both inflammation and malformations are to be regarded as modifications of the "evolved intrinsic reparative faculties."

A very interesting and instructive section of the book is devoted to a study of these processes as they affect plants, more especially as shown in the galls and cecidia so common as a result of the irritation set up by parasites, generally certain insects or their ova. The large size and obvious nature of the irritant and the ease with which the histological changes resulting can be studied enable the responses to such injurious irritation to be studied readily. These changes Dr. Ransom critically examines from a variety of different points of view and maintains that they are a modification and misdirection of the normal processes of repair as they occur in vegetable structures and that the histological changes resulting are such as to benefit the irritant cause and not the organism affected. A large section of the book is then devoted to an examination of the various processes of inflammation and disordered growth in animals in the light of the results observed in plants, while in a subsequent section a comprehensive survey of the processes in living organisms generally is given. As already stated, Dr. Ransom leaves out of consideration the vascular and the chemical responses to irritation, consequently for him inflammation is always, in all its forms and manifestations, a harmful process, interfering with, and modifying, the normal reactions of repair. There can be little doubt that, biased by his studies in phyto-pathology, and restricted at the very outset by the elimination of many of the associated henomena of inflammation as observed in the higher animals, he has lost sight of, or ignored, the protective processes which modern research has shown to play so large a part in the reaction of many organisms to injurious irritation. The problems of immunity, whether natural or acquired, the production of protective substances or anti-bodies by the organism, he has not considered. Here, again, it is probable that, keeping in mind the changes induced in plants by gross irritants like parasites, and impressed by the adaptation of many of the responses to the needs of the parasite as opposed to the protection of its host, he has failed to attach due importance to those actually protective processes which are to be observed in animals as a direct result of the action of bacterial products, which can therefore hardly be regarded as perturbations of normal repair but rather as a direct and protective response on the part of the injured organism to its irritant.

In the last section of his book Dr. Ransom gives a general definition of his "inflammation idea" and discusses its limitations, especially in regard to the production of malformations. He admits that repair, inflammatory processes, and those abnormalities of repair which lead to malformations may co-exist and be difficult to separate.

Dr. Ransom's book represents a great deal of work and contains many interesting observations but the style is involved and there is a great deal of very unnecessary repetition. In endeavouring to evolve a wide conception of the process of inflammation Dr. Ransom has by his self-imposed limitations failed to include some of the most interesting and important of its manifestations.

An Experimental Study of the Parasite of the African Tick Fever. By ANTON BREINL, M.U.Dr. Prag., and ALLAN KINGHORN, M.B. Toronto. Memoir XXI. The Liverpool School of Tropical Medicine. 1906. Pp. 116. Price 7*s.* 6*d.* net.

THE study of a tropical disease can rarely be carried out in a laboratory in this country under conditions so favourable to the investigation as were enjoyed by Dr. Breinl and Dr. Kinghorn while they were making their recent investigations with regard to the African tick fever. Dr. Breinl himself and three of the laboratory attendants contracted the disease while the experiments were being carried out and the results which they have been able to obtain are therefore of unusual interest and great value. The authors have named the Spirochæta which causes the disease "Spirochæta duttoni," after the late Dr. Dutton and have shown that it is distinct from Spirochæta obermeieri, the parasite of ordinary relapsing fever. They make a note upon the protozoal nature of the Spirochætæ and bring considerable evidence against the possibility suggested by some observers that these organisms should be considered as bacteria. Several rats inoculated from a patient during the interval between the attacks, when no parasites were present in the peripheral blood, became infected coincidently with the onset of the succeeding relapse. This would seem to point to a definite life cycle of the Spirochæta in the host. Susceptible animals cannot apparently be protected against infection by the use of immune and hyper-immune serum. Several other facts enumerated by the authors point to the conclusion that Spirochætæ must be regarded as protozoa. The virulence of the disease is not affected by passing the Spirochætæ through various animals, even through those which are peculiarly susceptible, nor does the virulence seem less in those animals which have been infected by sub-inoculations than in those which have been infected by the bites of ticks. After removal from the body during the onset of the attack the Spirochætæ increase in number whether they are kept at the temperature of the room or at the temperature of the body. When treated with the serum of immune animals at room temperature no difference in their rate of increase or in the length of time for which they live was produced. At a temperature of 37° C., however, a marked result was produced. Blood taken from an animal during the second or third day of the attack was mixed with serum of rats that had recovered. Death began to occur among the spirochætæ in about half an hour and all were dead in seven hours. Normal serum, used instead of the immune, showed no change among the Spirochætæ after four hours and some of them were still alive at the end of 30 hours. Infected blood injected into normal rats intraperitoneally showed that the Spirochætæ increased rapidly until they appeared in the peripheral blood. In the peritoneum the number of granular leucocytes present increased slowly and were numerous after three or four hours. Immunised rats injected in a similar manner showed an increase among the Spirochætæ and of the granular leucocytes after 15 minutes, but at the end of three or four hours there were no living parasites and only a few leucocytes. Injections into the peritoneum of hyper-immunised rats showed only sluggish Spirochætæ after two minutes and none alive at the end of ten minutes. In these animals the leucocytes were very scanty and some were filled with broken up Spirochætæ. In animals which have recovered from the infection there is a relatively active immunity of comparatively long duration. The authors, though they tried an exhaustive series of experiments, were unable to produce passive immunity through the use of immune serum. Serum from hyper-immunised animals, whether horses, monkeys, or rats, does not protect a susceptible animal against the disease but does prolong the incubation period and mitigates the severity of the infection. Immune serum has no curative action whatever; hyper-immune serum occasionally cuts short an attack but does not prevent the occurrence of relapses. There is a slight inborn immunity of short duration in the young born of animals which are suffering from the disease.

Spirochæta duttoni passes through the placenta from the circulation of the mother to that of the fœtus. The majority of the fœtuses carried by an infected mother are themselves infected. The parasites are found in the placenta in approximately the same numbers as in the

maternal heart blood but, on the contrary, occur in very scanty numbers in the fœtal circulation. The Spirochætæ in the fœtal circulation show no morphological changes and infected pregnant rats show no tendency towards abortion, but few of their young, in comparison with those from healthy mothers, reach maturity. In splenectomised animals the Spirochætæ disappear from the peripheral circulation after the attack as promptly as in normal animals and relapses occur in the ordinary way. When the spleen is removed shortly after the Spirochætæ have disappeared from the peripheral circulation after the first attack the relapses occur just as in the controls. During the incubation period after ticks have been fed on a susceptible animal the Spirochætæ do not develop in the spleen as the site of election. Active immunity against tick infection is not influenced by the spleen. A further very suggestive fact demonstrated by the authors is that the filtrate of infected blood produces infection though the Berkefeld filter used did not allow of the passage of Bacillus prodigiosus. Though the filtrate did not contain any foreign particles apparent to microscopical examination it would seem very probable that there is some stage in the life cycle of the organism that remains to be demonstrated. The same authors, in conjunction with Dr. J. L. Todd, made an exhaustive series of attempts to transmit both Spirochæta duttoni and Spirochæta obermeieri through the common bed bug. Their results show that it is extremely improbable that Cimex lectularius is able to transmit either of these Spirochætæ and that it cannot be an important factor in causing epidemics of relapsing fever. The authors do not deal at any length with the morphology of the Spirochæta of tick fever but state that their studies in this direction are not yet completed.

It is to be hoped that the barbarous method of drying specimens will be abandoned in future investigations of the morphology of parasites. However useful this method may be for purposes of diagnosis, drying is so fatal and so irregular in its effects upon animal and vegetable tissues, that, in so far as the fine morphology of the organisms observed is concerned, grave doubt as to the real value of the results obtained from dried specimens must always exist. A full account of the symptoms is given and also of the various forms of treatment which were adopted. It is interesting to note that atoxyl had no effect either on the disease or on the parasite. Dr. Breinl and Dr. Thomas found that atoxyl had a markedly beneficial effect upon sleeping sickness and published their results in Memoir XVI. of the Liverpool Tropical School, 1905. A few days ago Koch claimed as a new discovery the treatment of sleeping sickness with atoxyl.

Étiologie et Pathogénie des Hémorragies Graves du Nouveau-Né. (*Etiology and Pathogenesis of the Severe Hæmorrhages of the Newly Born.*) By Dr. P. LEQUEUX. Paris: G. Steinheil. 1906. Pp. 292.

IN this monograph the author considers the important question of the severe hæmorrhages occurring in newly born infants, the pathology of which is a matter of much obscurity. The book is divided into three yarts: the first is concerned mainly with the history of the subject, the second deals very fully with the etiology of this condition, and the last part is devoted to a consideration of the pathology. Dr. Lequeux records numerous personal observations and gives also a very full *résumé* of the literature of the subject. He, like most other writers on this condition, regards it as merely a symptom of several different morbid states and holds that it represents one of the normal modes of the reaction of the newly born organism to various forms of toxic infection. He also thinks that large numbers of cases of hæmorrhages of slight degree pass unnoticed as they give rise to few or no symptoms and no external bleeding. As etiological factors he regards bad hygienic surroundings, prematurity, and congenital debility as of some importance, and is inclined to attach much weight to a history of alcoholism, lead poisoning, Bright's disease, and more especially syphilis, in the parents. Upon a soil prepared in one or another of these ways the different forms of intoxication act as direct causes of these often very severe hæmorrhages. Syphilis can by itself produce the condition but more often an actual microbic infection comes into play. Many organisms may produce this symptom of bleeding but amongst those most frequently met with are the streptococcus, the staphylococcus, and the colon bacillus. Another organism, which the author believes may be identical with the bacillus of Friedländer or the bacillus lactis aerogenes, is not uncommonly found. The infection may attack the unborn infant but more often it occurs during the first few days of life. In intra-uterine cases no doubt the toxins alone play a part, the transmission of the germs themselves being prevented by the filtering action of the placenta. After birth the infant and the mother are often attacked at the same time and the symptoms occur simultaneously in both. At this time, however, the infection is most commonly transmitted by the mother and in certain cases where numbers of infants are placed in the same conditions the disease may assume an epidemic character. The door of entry of the organism or the toxins is most commonly the digestive tract or the umbilicus, the poisons speedily finding their way to the liver. The latter organ is the one most markedly affected. The two forms of changes met with in the liver, characterised, on the one hand, by an undue formation of fibrous tissue and, on the other hand, by acute degenerative changes in the cell elements, no doubt correspond to the two forms, the acute and the chronic, of the intoxication. As a result of the interference with the functions of the liver jaundice is not an uncommon complication and marked alterations in the blood are met with. In most of the organs there are a marked deposit of iron pigments and intense congestion leading finally to hæmorrhages. Together with these changes those met with in the blood are very marked. As the result therefore of the action of these various toxins all the conditions necessary for the production of severe hæmorrhages are present—namely, changes in the vessel walls permitting marked diapedesis, alterations in the blood characterised mainly by marked leucocytosis, destruction of the corpuscles, deposit of blood pigment in the tissues, and diminution in its power of coagulation, while due possibly to the action of the various toxic bodies upon the nerve centres or on the suprarenal capsules marked vaso-dilatation is present. It may therefore be said, as Dr. Lequeux points out, that it is the bringing into action by the organism of all its varied means of defence against the deleterious effects of the different toxins—namely, congestion, leucocytosis, and diapedesis—which, passing the normal limit, produces the hæmorrhages.

The author certainly makes out a good case for the conclusions at which he arrives and the book is worth reading by those who are interested in these uncommon but important cases.

The Pathology of the Eye. By J. HERBERT PARSONS, B.S., D.Sc. Lond., F.R.C.S. Eng., Assistant Ophthalmic Surgeon, University College Hospital. Vol. III., Part 1, General Pathology. London: Hodder and Stoughton. 1906. Pp. 358. Price 15*s.* net.

Mr. Parsons states in the preface that this volume commences the discussion of the general pathology of the eye. It contains eight chapters and includes congenital abnormalities, ametropia, the circulation and nutrition of the eye, the theory of immunity, the normal intra-ocular pressure and glaucoma, all of them interesting subjects, and some of them, as the conjunctival abnormalities, are either omitted

or but slightly referred to in text-books, owing to their small practical importance. The congenital abnormalities are here given in full detail with a great wealth of references and numerous and excellent illustrations. The various forms that have been recorded have been reduced to order in a topographical sense and the malformations that have been observed and recorded in the lids, conjunctiva, the several tunics, and in the size and position and contents of the globe as a whole are given in succession. Two useful sections are devoted to the abnormalities of the vascular system of the eye, to the consideration of the absence or irregular distribution of the pigment, and to defects of the lacrymal apparatus.

The chapters on the Nutrition of the Eye are novel, interesting, and instructive. They could not have been written a few years ago and they enable Mr. Parsons to bring together a number of facts that do not admit of being appropriately dealt with elsewhere. It is stated that the cornea can be separated for more than half its circumference from the sclerotic without its transparency becoming impaired, and that upon Wagenmann's authority small portions may in animals be entirely separated, yet on being replaced they will reunite in favourable circumstances without loss of transparency. It might have been added that the whole of the cornea in cases of transplantation will form adhesions after careful adaptation to its new bed and retain for a long while, though not permanently, its transparency. The corneal tubules first described by Sir William Bowman and displayed by the injection of air or mercury, and subsequently by Leber by the injection of turpentine coloured with alkanna, or by the injection of a solution of asphalt in chloroform by Guttmann, are now considered to be produced artificially by the pressure employed. They are not preformed channels, yet they communicate with the lymph channels of the conjunctiva, which can be easily injected from them. Absorption of various substances from the surface or from the anterior chamber, such as atropine, eserine, strychnine, nitral, and potassium iodide has been demonstrated but takes place slowly owing to the resistance offered by the epithelial or endothelial cells.

Mr. Parsons notices a remarkable observation made by J. R. Ewald, that the opacity of the lens induced by abstraction of water is removed by massage of the lens or by shaking. In guinea-pigs, rabbits, cats, and dogs the lens becomes opaque in the pupillary area in from 10 to 20 hours after death unless precautions against drying are taken. Massage through the cornea is stated by Ewald to cause the opacity to clear up. Has a fair trial of massage of the eye ever been made in man? Another point of interest is that Meyhöfer found that of 506 glass-blowers 11·6 per cent. suffered from cataract. Mr. Parsons remarked that in glass-blowers the opacity cannot be due to the mere raising of the temperature of the lens since the aqueous is a bad conductor of the dark heat rays and the cornea would certainly be the first to suffer. Moreover, molten lead has often entered between the lids and formed a mould of the cornea without the production of cataract. Hence he attributes it to the great evaporation from the cornea and sweating of the skin. Some observations were made a few years ago, at the suggestion of THE LANCET, on Messrs. Salviati's workmen, with the result that none of the officials of that firm were found to be affected with cataract and they did not know of any case. They stated that they always stood at one side of the furnace when engaged in work and were careful to avoid looking into it.

The chapter on Myopia treated from a purely pathological point of view is remarkably full. Amongst the numerous causes of myopia it is shown that an elongation of the antero-posterior axis, or axial myopia, is by far the most common. Some difference of opinion seems to exist in regard to the frequency with which a white crescent occurs, representing posterior staphyloma or scleral ectasia as seen under the ophthalmoscope and encircling the entrance of the optic nerve to a variable extent, the majority of observers considering that it is present in about 80 per cent., while Mauthner and Bock, who are trustworthy witnesses, believe that it is absent in a larger proportion of cases. It seems to vary in different grades of myopia, being absent, according to Bock, in 36·96 per cent. of all myopes between 6 D. and 9 D., in 17·2 per cent. between 9 D. and 12 D., and in 11·5 per cent. between 12 D. and 20 D. The position of the crescent is on the temporal side of the disc in 69 per cent. and is annular in 9·6 per cent. of all myopes.

The diminution of central visual activity is associated with the presence of yellowish, white, or pigmented spots which are apparent in many cases. That the alteration in form of the eye in myopia affects the posterior part of the ball was well shown by Heine, who superimposed sections of the two eyes of the same patient, one eye being normal and the other myopic to − 15 D. It was then apparent that the two sections presented the same outline in the anterior half, but that the posterior half was much extended, prolonged backwards, and that the sclerotic was thinner in the myopic eye. In regard to the etiology of myopia race is an important factor. Stephenson finds in London schools the percentage of myopia in Jewish boys to be more than six times as great as in Christian boys, and more than three and a half times more than in girls. The most potent factors in the production of myopia are probably near work and insufficient food and light. Mr. Parsons reviews the various theories that have been advanced. He points out that neither accommodation nor convergence can alone suffice to explain the genesis of myopia, whilst the extrinsic theories of myopia are discordant and unsatisfactory. The microscopical changes in the coats of the myopic eye are fully described and illustrated.

The chapter on Glaucoma is one of the most interesting in the volume and shows well how the investigations into the nature of this disease made by clinical observation, by the results of treatment, and above all by pathology, of which we find here so valuable an account, have at length been largely attended with success, though some points still remain to be cleared up in this obscure and formerly quite inexplicable affection. Mr. Parsons introduces the subject of glaucoma with a few paragraphs giving a *résumé* of the various opinions that have been held in regard to its etiology. He then proceeds to give the results of modern researches, commencing with the application of the ophthalmoscope, and the observation of Mackenzie that it was associated with increased tension. Two great classes, it is remarked, can be distinguished—those in which the tension is moderately increased, in which the anterior chamber is deep and in which there are more or less definite signs of inflammation in the ciliary body, and those in which all grades of increased tension are met with, in which the anterior chamber is shallow, and in which, though congestion and irritation may be evidently present, definite signs of ciliary inflammation are either absent or of secondary occurrence. The etiology of the first form is probably best explained by attributing it to the enlargement of the lens which takes place in advancing life or to disproportion between the size of the lens and that of the globe, as was first pointed out by Priestley Smith and demonstrated by his careful measurements. The etiology of the second form is in a large proportion of cases interference with the drainage system of the eye effected through the canal of Schlemm which runs in the periphery of the cornea and in close proximity to the outer margin of the iris. This interference varies in different cases and may consist in the presence of annular or total synechia, perforation of the cornea with anterior synechia, dislocation of the lens either into the anterior

chamber or laterally, wound of the lens, operations upon the eye, intra-ocular tumours or hæmorrhage, detachment of the retina, and aniridia—all of which may lead to closure or obliteration of the filtration angle, and in addition there may be some change in the composition of the aqueous leading to its change into a colloidal fluid which can be shown to escape with difficulty from the anterior chamber through the normal channel.

In conclusion, great credit must be given to Mr. Parsons not only for his own contributions to the pathology of the eye but for the great service which he has rendered to all ophthalmologists in collecting from so many different sources, both in English and foreign journals, the cases of diseases that have been recorded but often in periodicals which it is difficult to consult. In addition he is deserving of great praise for the numerous and excellent drawings with which the work is illustrated.

The Health of the School Child. By W. LESLIE MACKENZIE, M.A., M.D. Aberd., Medical Member of the Local Government Board for Scotland. London: Methuen and Co. Pp. 120. Price 2*s.* 6*d.*

As in every civilised country the medical man and the school child are coming closer together the author offers these papers, reprinted in volume form, as a contribution to the practical side of the medical inspection of schools. The Royal Commission on Physical Training (Scotland) and the Committee of Physical Deterioration have aroused the minds of the majority to the importance of personal hygiene in schools. The medical supervision of school children appeals to every class of the community, and in the now defunct Education Bill a clause had been inserted to make medical inspection obligatory in all English State-aided schools. The author's papers deal with the following subjects: (1) the Hygiene of School Life; (2) Normal Growth in the School Ages; and (3) Medical Examination and Supervision of Schools and School Children. As "an ounce of example is worth a pound of description," the author gives translations of two sets of Regulations for School Doctors. These regulations have in them nothing vague, nothing doubtful. The points that concern Germany alone may be neglected and are printed only to preserve the sets of regulations complete. Of the two sets, the Nuremberg rules are the more formal, the Wiesbaden set the more practical. But the work is much the same in each town. The regulations, with the health schedule and certificate forms, constitute a code of duties for school medical officers. As the author says: "If for the 'Magistracy' we substitute the School Board or the Education Authority, we may apply almost every one of the rules to an English or a Scottish system of medical inspection. The essential points are always the same—general constitution, height, weight, chest, heart, eyes, ears, &c." These accounts of the regulations at Wiesbaden and at Nuremberg are followed by Notes on Re-vaccination of School Children in Germany and on the Plan of a German Elementary School. "The primary stress of school life falls on the nervous system, for the primary business of the school is to educate the incompletely developed but rapidly maturing brain." The author reminds us that many children break down at the outset; many break down towards the end of school life; many suffer in minor ways that are never noticed at the time; and all are liable to suffer in growth and in nutrition. This latter fact alone makes good hygienic environment and good hygienic administration imperative. There is still room for improvement and adjustment between the Local Authority for Public Health and the School Boards. It still remains to be realised that the inspection of the school child is necessary, not for infectious diseases only but for all the diseases and conditions that in any degree unfit him for school life. The author has devised a Routine Schedule for this purpose on the basis of the schedule of the Royal Commission on Physical Training. It has already been used in the examination of over 3000 children. It indicates what is actually possible within school conditions in Scottish schools. This book will no doubt serve a useful purpose; it is pleasantly written, and it is an exposition on the health of the school child which deserves attention.

LIBRARY TABLE.

Helouan: an Egyptian Health Resort and How to Reach It. By H. OVERTON HOBSON, M.D. Edin., Egyptian Government Medical Director of the Baths. With 35 illustrations and two maps. London, New York, and Bombay: Longmans, Green, and Co. 1906. Pp. 88. Price 2*s.* 6*d.* net.—In consequence of receiving each year many requests for information about Helouan the author has published this little handbook. Helouan is only 16 miles south of Cairo; it has a beautiful climate. The average sunshine during the four winter months (1896-98 inclusive) was eight hours daily, the month of March recording the greatest amount. Taking the invalid's day as lasting from 9 A.M. to 9 P.M. the author tells us that a patient can live out of doors in pure desert air from the beginning of November to the end of March in an average temperature of from 60° F. at 9 A.M., increasing steadily to 70° at about 3 P.M., and returning slowly to a temperature of 60° at 9 P.M. At night the average minimum for the same period is 50°. During the same portion of the day and year the air contains only between 30 and 60 per cent. of moisture (relative humidity). The author says that although Helouan is in the desert it is singularly free from dust and markedly so in comparison with most European towns. He advises those patients who cannot manage to pass the whole winter at Helouan to go there late and to return late to Europe also, thereby avoiding the cold of the spring at home. The bath establishment is the property of the Egyptian Government and the baths seem to be well arranged. The medical springs are chiefly sulphuro-saline and simple saline. The book is a useful guide as to how to get to Helouan and on all the points which are worth knowing about it.

Verhandlungen des Vereins Süddeutscher Laryngologen, 1906. (*Transactions of the South German Laryngological Society, 1906.*) Edited, at the direction of the Society, by the Secretary, Dr. FELIX BLUMENFELD, Wiesbaden. Würzburg: A. Stuber. 1906. Pp. 337. Price 3 marks.—The report of the thirteenth meeting of this celebrated society, held at Heidelberg on June 4th, 1906, has recently been issued and contains contributions by 15 different members. An extremely interesting paper is that by Gutzmann on the tones of the human voice, in which he describes the position of the vocal organs in speaking and the tone limits of the human voice, both under normal and pathological conditions, and at various periods of life. Next follows a paper by Killian on nasal operations, in which he deals with the instruments employed and the methods of examining the nasal cavity, and gives details of cases which he has treated by operative measures. Kuhn contributes a paper on Intubation in Pharyngology, in which the methods of operation upon large tumours in the naso-pharynx are discussed under the headings of "the nasal method," "the facial method," and "the buccal method"; Fischenisch reports a case of syphilis of the naso-pharyngeal space with a fatal termination. A paper by von Eicken in which he gives a detailed description of the methods of differential diagnosis in diseases of the frontal sinus comes next. Von Schrötter reports various cases in which clinical bronchioscopic examination had been employed;

and Professor Polak describes the apparatus required for this method of examination and the manner in which it is employed. Next is a paper by Winckler upon Carcinoma of the Larynx, in which he goes into the question of the advisability of total extirpation of the growth in these cases and Dreyfuss contributes a case which had been operated upon for deeply situated carcinoma of the pharynx, after which comes Blumenfeld's paper upon the diagnosis of deeply situated carcinoma of the pharynx. Then follow a paper by Dreyfuss upon the position of laryngology in the combat with tuberculosis, one by Brühl upon the treatment of tuberculosis of the larynx when the lungs are healthy, in which he describes the various therapeutic measures employed in this condition, one by Schilling on Tuberculous Tumour of the Roof of the Pharynx, and one by Mink on Helps in Rhinology, while the last paper is by Winckler on bacteriological findings in disease of the upper air-passages, with practical conclusions, in which he goes very fully into the bacteriology of these affections.

The Health Reader. By W. HOSKYNS-ABRAHALL. With an Introduction by Sir VICTOR HORSLEY, F.R.S., F.R.C.S. Eng. London, Paris, New York, and Melbourne: Cassell and Co., Limited. Pp. 277.—In his introduction to this useful little book Sir Victor Horsley says that it is a conceded point that if our children are to grow up sound in brain and body the teaching of hygiene and temperance must penetrate their whole minds. He emphasises the regret expressed by those interested in the really profitable use of the education money that the hours of the short school life of the children of the people should be spent on such matters as niceties of grammar and vain essays in pronunciation and the like. He writes that could we but succeed in replacing this semblance of civilisation by the real civilisation which grows from the knowledge and the observance of the laws of life, "the lessons inculcated at school would find their daily practice in the routine of life, and the airy sun-lit rooms, the cleanly well-grown bodies, the cheap nutritious food, the well-fed, well-tended children, and the thrift that goes hand in hand with temperance would keep alive to the last hour of the working life the theory and the practice which the school inculcated." The Health Reader provided by Miss Hoskyns-Abrahall may be well used in any education scheme. The subject matter is clearly expressed, well thought out, scientific in its truths, simple in their presentment. We hope that the book may meet with wide acceptance in the educational world. It is sufficiently illustrated.

How to Keep Well: Practical Home Hints on Common Ailments. By C. STANFORD READ, M.B. Lond. London: T. Fisher Unwin. 1907. Pp. 199. Price 2*s.* 6*d.* net.—These articles concerning health matters are "in no wise intended to take the place of a visit to a medical man." Though the author's aim is mainly a practical one, a certain amount of theory is gone into in order that the applied knowledge may be more intelligible. He says: "Every intelligent individual must see that the only rational cure of most of our trivial diseases lies in alteration of our dietary, habits of life, the taking of more exercise, &c." The following piece of advice to his readers is very sound: "Frame your habits of living so that you run the smallest chance of ill-health, but if illness does come, only take drugs under medical advice or harm may arise you little dream of." The paragraphs on habitual mouth breathing and on mastication are valuable. The author touches on many useful points and gives much sound advice in the 49 chapters of this little book which is pleasantly and instructively written.

Vagrancy. Being a Review of the Report of the Departmental Committee on Vagrancy (1906) with Answers to Certain Criticisms. By Sir WILLIAM CHANCE, Bart., a Member of the Departmental Committee. London: P. S. King and Co. 1906. Pp. 48. Price 6*d.* net.—This essay contains the substance of two papers read by the author before the West Midland and North Western District Poor Law Conferences. They are here combined, with certain additions, into one paper, so that it may form a complete review of the report of the Departmental Committee on Vagrancy. The pamphlet not only draws attention to the main points of the report but it also answers certain criticisms which have been made upon its proposals. The report of the Departmental Committee was a unanimous one and this should commend it to the most careful consideration of the country. History shows that the question of vagrancy has never at any time been dealt with in a thoroughly scientific manner. The treatment of the vagrant has been practically left to the whims and wishes of local administrators. The term "vagrant" is a very elastic one. Four types may be distinguished: (1) the *bonâ-fide* working man who has taken to the road in search of employment; (2) the men who are willing to undertake casual labour but who object to, or are unfit for, continued work; (3) the vagrant who professes to be in search of work but has no desire to find it; and, lastly (4), there are the old and infirm wayfarers who are unemployable. Women are found amongst all these classes, though in small numbers, and to them perhaps a fifth class, that of children, may be added. The proposals of the committee may be ranged under two main heads, the first dealing with the relief of vagrants, and the second with their punishment and treatment when convicted of repeated vagrancy offences. As to the first, the committee proposed that the casual wards for male vagrants should be transferred from the care of the guardians to the police authorities. Male vagrants would thus be relieved under the directions of the police, and there would be uniformity of task, diet, and detention. The committee considered that the workhouse was the most suitable place for the relief of women and children. Under the second heading, in lieu of a series of short terms of imprisonment which have no useful effect on the vagrant, the report suggests the detention of habitual vagrants in labour colonies for terms varying from six months to three years. In his conclusion Sir William Chance emphasises the great defect of the present system in that two separate authorities have to deal with the vagrant class and he certainly shows us that the committee has brought the facts together in a way that has never been done before. In an appendix of four pages the author gives a "Summary of Recommendations." We consider the pamphlet to be a most useful review of the vagrancy question; it should be widely read.

Reports and Analytical Records
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administered in the form of gelatin-coated pills each containing one-twelfth of a grain of the alginate. It is stated that it has been successfully employed in cases of lupus and also for tuberculous ulceration of the bowels and dysentery. It appears that alginoid copper is analogous in composition to the copper salt found in certain animals which serves the place of iron in the higher animals. Alginoid copper is said to be well assimilated by the protoplasm of the cells and as an internal antiseptic has been found of considerable value in chronic cases which do not generally yield to treatment.

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(1) A VEST POCKET INHALER; (2) ELIXIR HEROIN AND TERPIN HYDRATE; (3) ESENCIA DE CALISAYA; AND (4) ADRENALIN AND EUCAINE TABLETS.

(PARKE, DAVIS, AND CO., 111, QUEEN VICTORIA-STREET, LONDON, E.C.)

1. The vest pocket inhaler is a quite simple device. It consists of a cylinder about two inches in length and three-quarters of an inch wide, provided with a mouthpiece at one end and a series of perforations at the other covered by a cap which can be partly unscrewed so as to admit air through the cylinder. The whole is made of vulcanite and the cylinder is packed loosely with absorbent material. With the inhaler is provided a small bottle containing menthol pine inhalant. By means of this simple inhaler inhalation can be practised as frequently as is desirable. It is easily carried in the pocket and is practically unbreakable. 2. The elixir heroin and terpin hydrate is a carefully prepared compound containing in each fluid ounce one-sixth of a grain of heroin and eight grains of terpin hydrate. It thus combines the sedative properties of heroin and the stimulating action of terpin hydrate. It is employed as a pleasant and effective expectorant, being prescribed in various respiratory affections. 3. The esencia de calisaya contains the entire active principles of genuine cinchona bark which therapeutically may have better results than when quinine alone is given. The essence is agreeably flavoured and is thus not unpleasant to take. Each fluid ounce represents 24 grains of the best yellow Peruvian bark. 4. The adrenalin and eucaine tablet contains $\frac{1}{2000}$th grain of the powerful hæmostatic adrenalin and one-sixth of a grain of the analgesic eucaine in the form of lactate. For dental extractions and minor operations one tablet is dissolved in 17 minims of sterile distilled water.

KEROL.

(QUIBELL BROTHERS, NEWARK.)

Kerol is described as containing as its active bactericidal principle an oxygenated di-phenyl compound which, while acting as a powerful antiseptic, is comparatively non-toxic and non-irritant. In regard to its germicidal value, it is stated that the carbolic coefficient is in the case of the typhoid bacillus 13·5 and in that of the diphtheria bacillus 22·0. The coefficient, however, has, we understand, been raised considerably recently. This equivalent is little affected by the organic matter which was employed in the test, but the form of this organic matter is not stated. Kerol is a clear brown fluid which, when added to water, forms a milky white emulsion.

(1) MARVIS FISH FLAKES; AND (2) MALTED MARVIS.

(W. L. THOMPSON, 23, COLLEGE-HILL, CANNON-STREET, LONDON, E.C.)

1. In appearance marvis fish flakes resemble small potato chips. Analysis would indicate the preparation to be of considerable nutritive value. The flakes contain, for example, 57·33 per cent. of proteid. Analysis further showed the presence of about 17·37 per cent. of carbohydrate chiefly in the form of starch. The preparation affords a cheap article of diet and may be used for making fish cakes, &c., which have the advantage of not being tough or indigestible, as is frequently the case when the ordinary dried cured fish of commerce is used. The fish flakes are very clean in appearance. 2. The malted marvis contains, according to our analysis, 31·75 per cent. of proteid, the fish in this case being associated with powdered barley malt. The mineral matter amounted to 5·50 per cent. It is a unique preparation and has the advantage of keeping in good condition for quite a long time. It contains real nutritives and in this regard compares very favourably with meat or malt extracts.

(1) SOLOID EOSIN-AZUR; AND (2) PHENOFAX.

(BURROUGHS, WELLCOME, AND CO., SNOW HILL BUILDINGS, LONDON, E.C.)

1. The view that the spirochæta pallida is the causal organism of syphilis has rendered its identification by staining methods of importance. The method recommended for staining malarial blood suggested by Giemsa requires a mixture of aqueous solutions of eosin and of pure methylene azur. The preparation of two solutions may be avoided by employing the soloid eosin-azur, the staining thus being done with one solution. Nuclear and malarial bodies stain an intense red or violet colour, while the spirochæta pallida stains a paler reddish purple. 2. Phenofax is an excellent creamy-looking compound for application to the skin and mucous surfaces. It contains 7 per cent. of pure phenol in a non-irritating basis. It provides a means of applying carbolic acid locally and is also an antiseptic healing dressing for wounds, abrasions, and so forth. It is likewise used for treating mucous surfaces and is soothing as well as healing.

DOMECQ'S BRANDY.

(AGENT: LUIS GORDON, 43 AND 45, GREAT TOWER STREET, LONDON, E.C.)

We have more than once pointed out that excellent brandy well adapted for medicinal purposes is produced in Spain; Domecq's brandy supports this view. It has a delicate flavour and shows a good proportion of wine ethers. Our analysis gave the following results: alcohol, by weight 39·80 per cent., by volume 47·13 per cent., equal to proof spirit 82·59 per cent.; extractives, 1·02 per cent.; and mineral matter, *nil*. The ethers reckoned as ethyl acetate amounted to 105·60 grammes per hectolitre of absolute alcohol present. The aldehydes and furfural occurred only in small proportions. In all we examined three specimens, the analysis giving similar results, but the specimen marked "extra" is the finest from the point of view of the palate, and next come the specimens called "two vines," and lastly that known as "monopole." The brandies were pale in colour, clean to the palate, and had a delicate flavour and bouquet.

VIVAQ MINERAL WATER.

(THE ENGLISH NATURAL MINERAL WATER CO., 79, GREAT TOWER STREET, LONDON, E.C.)

This water is interesting as being derived from an English source. It is stated that the water is bottled at the well without any addition whatsoever. It is an agreeably sparkling water and is very clean to the palate, due chiefly to the fact that it is mildly alkaline owing to the presence in it of carbonate of sodium. It is, in fact, a natural soda

water, carbonate of soda being the chief mineral constituent. According to our analysis the water contained in grammes per litre: carbonate of sodium, 0·72; sodium chloride, 0·60; and sodium sulphate, 0·19. A feature of some importance in regard to the composition of this water is that it contains only trifling quantities of calcium and magnesium salts. The samples were perfectly bright.

(1) ELIXIR OF FORMATES; AND (2) MALT AND HÆMOGLOBIN.
(THOS STEPHENSON, 137, GEORGE-STREET, EDINBURGH.)

1. We have already referred to the use of formates in medicine on account of their stimulating effects and of their increasing the power of resistance to fatigue much in the same way as does caffeine Their administration, therefore, has been suggested in neurasthenia and nervous prostration. The above preparation contains the formates of calcium and sodium and strychnine ($\frac{1}{30}$th grain per dose). The elixir is carefully prepared, bright, and permanent. 2. We found the fluid extract of malt and hæmoglobin to be as described—that is to say, it consists of an active fluid extract of malt containing 10 per cent. of hæmoglobin, which is stated to be pure and sterilised. The characteristic hæmoglobin spectrum was well marked and the preparation showed a distinct digestive action on starch.

New Inventions.

IMPROVED VAGINAL PESSARY.

THIS vaginal pessary, which I have had made according to my suggestions by Messrs. James Woolley, Sons, and Co., Victoria Bridge, Manchester, is made of vulcanite and is therefore rigid throughout. The base is broad, and being rigid it possesses the advantage of being incapable of becoming compressed (as in Greenalgh's). It has also a rigid arch in the centre which effectually prevents pressure on, and consequently irritation of, the neck of the bladder. On each side of the arch the base forms a broad support which adds to the comfort of the patient, and since the base cannot become compressed (as in those made of soft rubber) the purchase obtained by these supports renders the pessary

less liable to slip. I consider this a very great improvement on the other pessaries which, owing to their narrow supports at the corners, cause much pain and discomfort when pressed upon by the weight of the parts they have to bear. Though rigid the pessary is easily introduced or extracted and without fear of breaking. I have designed this pessary to meet what I call a long-felt want in my practice. I have used them in several cases of prolapsus uteri with most satisfactory results, and the patients have been loud in their praises and grateful for the relief afforded.

Bolton. M. J. RYAN, L.R.C.P. Irel., and L.M., &c.

A NEW TWIN CLAMP.

I HAVE designed a clamp, which has been made for me by Messrs. J. Weiss and Sons, Limited, 287, Oxford-street, London, W., and which I have used in my last few operations, and I think it will prove useful to others as well as to myself. It is what might be called a twin clamp and at first sight appears to be an enlarged Carwardine's intestinal clamp. On examination, however, will be seen the peculiar interlocking points which keep the blades true when grasping a mass of tissue, the single slot which joins the two clamps together thus enabling the surgeon to separate them during the operation without unduly stretching the posterior row of sutures and the fact that the forceps designed to grasp the stomach is almost twice as powerful as that designed to grasp the more delicate jejunum. The length of the blades is five inches and that of the entire forceps is nine inches.

⅓ SCALE

When these forceps are applied and locked together the parts are firmly held in the most exact position during the process of suturing the viscera. I find it better either to separate the two forceps, or indeed to remove them altogether, as soon as the three posterior layers and the first anterior layer of sutures have been introduced, as this allows of unfolding of the parts without tension, and also because a clamp at this period of the operation has ceased to be of any assistance. These forceps may be used either with or without thin rubber tubing drawn over the blades. Personally I have not found rubber necessary.

R. CHAS. B. MAUNSELL, M.B. Dub., F.R.C.S. Irel.,
Surgeon to Mercer's Hospital, Dublin.

GLAMORGANSHIRE MILK-SUPPLY.—The Swansea corporation has decided to call a conference of members of the Glamorgan county council and of the Cardiff and Newport borough councils to consider what steps should be taken to improve the conditions under which milk is supplied to towns and populous places. In his last annual report the medical officer of health of Swansea (Mr. Ebenezer Davies) pointed out that nearly 9 per cent of the samples of milk examined during 1905 were found to be adulterated. During the preceding five years the average was about the same. It would appear desirable therefore that more samples should be taken and proceedings instituted against delinquents. There are in the town of Swansea about 60 cowsheds and in the rural district adjoining there are over 200. It is the condition of the cowsheds outside the town which has doubtless led the corporation to call the conference referred to. The medical officer of health of one of the rural districts in his last report stated that the constant inspections of the dairies, cowsheds, and milkshops in his district had very much improved their conditions, but there was a great deal yet to be desired. In another rural district the medical officer of health reported that the condition of the cowsheds was, on the whole, satisfactory and was steadily improving. He also stated that during 1905 there occurred five cases of scarlet fever, one case of typhoid fever, and one of diphtheria on dairy farms.

THE LANCET.

LONDON: SATURDAY, JANUARY 5, 1907.

Some Thoughts for the New Year.

THE opening of a new year leads all of us to take some stock of the past and to formulate a certain number of resolutions for the future, and the frame of mind which is thus indicated should be indulged in, but only with moderation. To spend too much time in thinking over what has gone by will interfere with the work that lies under our hand; to make resolutions that are too large and too numerous for our powers is to court disappointment. None the less every thoughtful man will use his past experience to guide him in the future both as to what he will do and as to how he will do it. In the days of the founding of THE LANCET it was a usage among those responsible for the issue of a newspaper to announce at the beginning of the year their policy for the 12 months ahead, while pointing out wherein, according to their humble opinion, they had merited the praise of their supporters during the 12 months just elapsed. It is now some years since we followed this custom and we do not think that any prefatory statements of our intentions are necessary, for we are fortunate in having a policy permanently outlined. THE LANCET was founded over 83 years ago in the interests of the medical profession, to be a medium of exchange between its members of scientific information, and to be the instrument in their hands by which reform of all sorts, professional, legislative, and popular, might be promoted. This has always been our scheme of procedure and when upon such anniversaries as the issue of a first number of a new year we take stock of the past we cannot find that we have ever departed from it. It goes without saying that we have made mistakes through want of information or through absence of foresight, so that now for this reason and now for that we have not always been able to carry out our plans exactly as we should have liked; but on the other hand, aided by the hearty coöperation of our readers, we have been able in the past to serve two, and now nearly three, generations practically. We shall continue on the same lines. We have not the slightest intention of setting out here a catalogue of what we consider our particular good deeds in 1906; we only ask our readers to believe that by as much as we have been of service to them in the past by so much do we hope that we shall serve them in the future. We are proud of the confidence that has been so long extended to us and we shall relax no effort to deserve it.

Although we have referred to our policy as being an invariable one, the words are used in a very inclusive sense, for there is nothing monotonous in the life of a medical newspaper. When we remember the rate, for example, at which medical science has progressed for—say—the last 20 years, the truth of these words is obvious. The art of medicine that we practise is not the same art as that which our immediate predecessors practised, it is not even the same as the senior members of the profession still with us learned in the schools. Changes have of late been so great and fundamental that we may indeed be tempted to overlook or to undervalue what was really good in the older methods. The rapid multiplication of remedies and of therapeutical preparations is of itself confusing, and would not be an altogether healthy sign if we did not regard the present condition as one of transition. No one who reads aright the signs of the medical times in which we live can fail to see that much work which appears to be needlessly complicated, or done to satisfy scientific curiosity rather than in the cause of healing, tends directly towards the simplification of medical practice. The multiplication of observations, made by the chemist or physicist as much as by the physician or surgeon, and the correlation of the results obtained by these workers in different fields will lead, and is leading rapidly, to a more scientific basis of procedure in medicine. Diseases are tending to group themselves so that therapeutic routine becomes common to many of them, prophylaxis with identical details will be employed against such groups, and it follows that the work of the practitioner will grow more straightforward in the sense that some of the procedures founded upon empiricism or rule of thumb will be discarded, others remaining in use because they are seen to be the outcome of scientific reasoning. The difficulty for the practitioner, as for us who attempt to serve him, is that, whatever the advances of science may be pointing to, for the present disease must be dealt with as it is, and in a ready and practical way. We cannot wait. We must use the weapons that lie to our hands, while helping to forge more effective ones for the future. It is not possible to over-rate the value of research, and rash indeed would be the man who would predict, while pathology contains so many mysteries, that from any particular experiments, however vague apparently in their direction, no good could come; but we must not undervalue the lessons of clinical experience which have been learned by every good practitioner. We may hope for simpler, for readier and, if the word is preferred, more scientific methods, we must all do our best by the recording of personal observations to assist in the development of our common knowledge, but disease will not stand still until new schemes of treatment are evolved.

Hence it comes about that the responsible and conscientious medical newspaper, if it is read, as we are proud to remember that THE LANCET is read, by all sections of the medical world, will be at the same time steadfast in its broad policy while ever changing in detail. It will also appear to go too slow for some sections and too fast for others. The lay press and ardent members of the medical profession find us occasionally, we know, timid, in that we will not devote bountiful space to the discussion of new discoveries until we have a certain amount of evidence that there is any value in the discoveries, that they are not repetition of work already recorded, and that they will not do more harm than good by raising false hopes. A widely read newspaper is not the place for the publication of crude suggestions or large deductions from insufficient premisses. The suggestions and

deductions alike may have an element of truth in them, but they should be rigidly tested before they are made public. It may be said that the preliminary sifting of error from fact cannot be more conveniently done than in the columns of a newspaper, and that in this way THE LANCET, for example, becomes exactly the medium of exchange which we wish it to be. Quite so, and discussions of original work have formed always a prominent feature in our columns, and will continue to do so. But we have to decide on the shape and limits of such debates, and in so doing we have to remember the assumption of some workers that their contributions ought to be published free from criticism, and ought to receive exactly that amount of attention which the discoverers think to be their due. In the interests of our readers we have to protest against this view frequently, and all who have conducted serious investigations in the right spirit know that the course which we pursue is fair and practical. It must be remembered that only a limited number of the medical profession can possibly read with appreciation the details of a new and elaborate research. So much has specialisation now become necessary in the all-embracing pursuit of medicine and the branches of physical knowledge ancillary to medicine, that those engaged wholly in the work of research do not fully understand each other's communications if their researches are in different directions. It follows that a newspaper which would have as much regard for the needs of the present sick, and of those who minister to them, as for the developments of medical science must be chary of devoting to unnecessary or premature debates space which could be better used in the illustration of practical lessons.

For any egotism that may reveal itself in this our short greeting we beg our readers to excuse us, while, in conclusion, we offer them our best wishes for a Happy New Year.

Army Medical Reorganisation: The New Advisory Board.

WE published in our last issue an important official communication from the War Office relating to the Army Medical Services and announcing the appointment of a reconstituted Advisory Board. Owing to the pressure of the Annus Medicus on our columns, we were not able to say more than that from a general point of view we thought that the changes indicated were for the good of the services and much to be desired at the present time. We now propose to discuss these changes in detail. The communication opens with the significant statement that owing to the existing Advisory Board having now completed the details of army medical reorganisation referred to it by the Reorganisation Committee of 1901 the Secretary of State for War has decided to reconstruct the Board and "to make it more distinctly advisory in its functions." In giving effect to this decision it has been wisely determined to make it an occasion for introducing some changes of a radical and comprehensive nature. These will increase the size of the Advisory Board, will add to its powers and responsibilities, and will tend to enlarge its sphere of usefulness. These changes should also have the effect of putting the medical services in a more defined and independent position than they have hitherto occupied and one more worthy of the responsible scientific functions which they are called upon to discharge. As the newly constituted Advisory Board, for example, is to be distinctly advisory in its functions it will presumably have nothing to do with questions of a purely army administrative or military disciplinary kind.

Having regard to the inauguration of the new War Office in Whitehall as the seat of government of the British army—the first occasion on which all the branches and departments of the War Office, military, medical, and civil, have been properly correlated and grouped together under the same roof—it is fitting that there should be a new order of things for the medical services. That this great War Office reorganisation has been rendered necessary no one doubts but whether it will lead us any nearer to the realisation of army efficiency must obviously depend upon the spirit and the way in which the work is undertaken and carried out in practice. The key, we take it, to the new arrangements and revised position, as set forth in the War Office document, is to be found in the attempt to secure two things—namely, the skill of the expert and the specialist, and at the same time the interdependent coöperation of these in working out administrative ends. No exception is to be taken to the constitution of the new Board, which is a mixed one. The Director-General will very properly be the chairman but we have still to await the announcement of the names of the other members. We have no doubt that those selected from the civil ranks of the profession will be of recognised standing and repute, and in these days of early specialising in science some of them, we think, should be engaged in teaching the most recent developments of medical science. As is highly desirable, an officer of the Royal Engineers, in addition to a civilian sanitary expert (who will, it is understood, be medical) and a specially qualified officer of the Royal Army Medical Corps will be on the Board which will quite rightly be composed largely of selected army medical officers. As the great practical aim in view is to bring the sanitary and the medical requirements of the army under the notice of Parliament paragraph 3 of the War Office communication deserves to be welcomed. This provides that the Board will in each year take into consideration the statistics and reports of the Army Medical Department and make an annual report upon them to Parliament. The Board can then in its corporate capacity call attention to, and emphasise, those points which it is specially desirable to notice. It may be assumed that the appointment of an Army Medical Advisory Board originated in a desire to obtain for the military authorities the best civil medical advice available and also to aid and to strengthen the medical services with regard to their medical, hospital, and sanitary work and requirements for the army. How far this idea has yet been fully realised it may not be easy to say It is always difficult in the case of large and very mixed boards, the members of which are working together in common but from more or less independent points of view, to confine each man within his respective sphere of action and to prevent overlapping. Be this as it may, it is desirable that in the case of all such boards fresh blood should be introduced from time to time and at not too long intervals.

We think, however, that in the case of Sir FREDERICK TREVES, if he can be prevailed upon to continue his labours in the interests of the army, an exception should be made because of his surgical eminence, his war experience in South Africa, and the fact of his now being professionally disengaged.

There is but little left for comment regarding the nature, assignment, and distribution of the various functions of the new Army Medical Advisory Board. The Army Sanitary Committee which has been in existence—although not under the same name—since nearly the end of the Crimean war and which has done excellent work is dissolved. All building plans and sanitary questions of a scientific nature will in future be referred to the Army Medical Advisory Board. It cannot be ignored that there has of late been much unrest in the Royal Army Medical Corps and among other things in regard to the working of the present system of promotion and the foreign service roster. Nothing is said as to the latter, and as regards the former, where promotion is so largely based on selection, some disappointment is unfortunately inevitable. What has, however, to be secured is that the method followed is impartially carried out. It will be noted that future recommendations for promotion to the fixed establishments of the Army Medical Service will be made by a board consisting of the Director-General and the Surgeon-Generals serving at home before submission to the selection board. We fully concur in the appointment of an officer of the Royal Army Medical Corps to act as inspector of hospitals and of army sanitation on the staff of the Inspector-General of the Forces, as originally suggested by Surgeon-General G. J. H. EVATT. This is a step in the right direction. But we hold, nevertheless, to the view that the Director-General should, as originally intended, be on the Army Council for the obvious reason that medical affairs would have a much better chance of being understood if they were verbally presented at the Council and could there be verbally supported. In conclusion, while we fully adhere to the favourable opinion derived from our first impressions on reading this War Office communication we must repeat that, however satisfactory and well-intentioned schemes may appear to be on paper, the results must depend upon the spirit and the way in which they are carried out.

The Minute Structure of the Liver.

THE details of the structure of the liver and of its peculiar vascular supply have frequently been the subjects of controversy among histologists. Many researches within recent years have tended to emphasise the differences of opinion rather than to remove them, so that the laborious and exhaustive investigations of Dr. PERCY T. HERRING and Dr. SUTHERLAND SIMPSON are peculiarly opportune. The results obtained by these observers in the physiological laboratory of the University of Edinburgh are recorded in a paper[1] read before the Royal Society on June 14th. The first matter investigated was the relation of the liver cells to the blood-vessels with especial reference to the intracellular channels which have been described in them. That material injected into the portal vein finds its way actually into the liver cells has been known for many years. As long ago as 1873 ASP showed that on injecting the portal vein with a solution of alcannin in turpentine oil under a pressure not exceeding 30 millimetres of mercury the alcannin was found in the liver cells, and that similar appearances were obtained in the cells on injecting the bile-ducts. In 1895 J. W. and E. HEWAT FRASER demonstrated in the frog a system of fine plasmatic channels too small to admit the blood corpuscles but communicating directly with the blood-vessels. These observations were confirmed by NAUWERCK and extended by BROWICZ who maintained that these channels convey plasma and even red blood corpuscles to the nuclei of the liver cells. He found red corpuscles in various stages of disintegration within the liver cells, and in the dog after intravenous injection of hæmoglobin he found that substance free and sometimes in crystalline form in the cytoplasm and in the nuclei. He farther described a second set of fine intracellular channels connected with the bile canaliculi. In 1901 Professor E. A. SCHÄFER, after injecting the liver in the rabbit and the cat with carmine gelatin, found that the cells everywhere contained networks of injection material which he described as "confined within sharply defined, somewhat varicose, intercommunicating canaliculi, many of which are in the immediate neighbourhood of the nucleus or nuclei." These observations were adversely criticised by E. HOLMGREN in 1902 who regarded the networks as artefacts, although he described certain channels in the liver cells of the hedgehog within which he observed fine processes from certain multipolar cells (Kupffer's cells). He therefore regarded these channels as connected with perivascular lymphatics and not with the blood-vessels.

Dr. HERRING and Dr. SIMPSON in their experiments used a variety of different injection masses and carefully arranged that the pressure should not be excessive; indeed, in many cases it is probable that it was less than that of the blood during life. In all the varieties of animals investigated these intracellular channels were found, though in some they are more easy to demonstrate than in others; thus they are extremely easy to demonstrate in the rat and more difficult in the monkey, in which animal they appear to be much finer and to require much higher pressures for their injection. The significance of these intracellular channels is carefully discussed by the writers in their paper. The presence of the pigment mass is not due to any vital action on the part of the liver cells, for the appearances are obtained even if the injection be made some time after the death of the animal, while perfusion of the liver before injection with chloroform in saline solution or with a solution of cyanide of potassium does not alter the results obtained. That the injection of the liver cells is not due to excess of pressure and rupture would seem to be established by the facts that the typical network is best seen when a moderate pressure only is employed and that in many places definite fine channels are seen continuous with the lumen of the blood-vessel. That the injection is not due to escape into perivascular lymphatics (if such exist) appears to be established, since the injection mass is found only in the blood-vessels and in the liver cells. In the dog some appearances of

[1] On the Relation of the Liver Cells to the Blood-vessels and Lymphatics.

especial interest are often to be observed, since it is not uncommon to find crystals closely resembling those of hæmoglobin within the nuclei of the liver cells, in some cases of such a size as apparently to stretch the nuclear membrane. In the cytoplasm of some of the cells red blood corpuscles are sometimes to be observed in process of disintegration. These observations, confirming those of BROWICZ, are of great interest in regard to one of the functions of the liver, affording good evidence that red blood corpuscles pass into the liver cells and are broken down there.

The lymphatics of the liver were also carefully investigated by Dr. HERRING and Dr. SIMPSON. In the work of previous observers marked discrepancies are to be found, a considerable number affirming the existence of lymphatic spaces encircling the intralobular capillaries as described in 1864 by MACGILLAVRY, although HERING combated this view. The observations just referred to regarding the close relationship between the liver cells and the blood-vessels would seem to render the existence of such perivascular lymphatic channels open to question. In the present research the lymphatics were carefully injected with carmine gelatin and it was found that the lymphatics were in the connective tissue of the liver and accompanied the branches of the hepatic artery, portal vein, and bile-ducts, but apart from extravasation of the injection mass no injection of the lobules occurred. The parenchyma of the normal liver contains little or no connective tissue and there is no evidence, according to Dr. HERRING and Dr. SIMPSON, of perivascular connective-tissue cells in the lobules. The structure of the intralobular blood capillaries is next considered. In 1876 KUPFFER described certain star-shaped cells occurring at intervals along the capillaries which have been demonstrated to be phagocytic in character, and many years later (1898) KUPFFER regarded the capillary wall as a syncytium, since he found it impossible to demonstrate limits between individual cells. About the same time BROWICZ insisted that the capillary walls were incomplete. In 1900 MINOT described the intralobular blood-vessels as blood spaces or "sinusoids" rather than capillaries. A sinusoid, according to him, differs from a capillary in consisting of an endothelial or endothelioid layer without a supporting adventitia, while it is closely applied to the cells of the organ in which it is found and possesses wide and frequent communications with neighbouring sinusoids. MINOT supported his contentions by reference to the development of the liver, in which the blood-vessels or sinuses between the ingrowing columns of liver cells are many times wider than capillaries and in the subsequent processes they become smaller, constituting what he called "capilliform sinusoids." The majority of recent observers seem to agree in finding no space between the cells lining the blood-vessels and the liver parenchyma and with this view Dr. HERRING and Dr. SIMPSON are in accord; they have been unable to find any evidence of perivascular lymph spaces in the lobules. They also agree with MINOT that the intralobular capillaries possess the characters which he assigns to sinusoids rather than those of ordinary capillaries; and they have further found in injected preparations of the livers of fœtal rabbits that the blood-vessels appear as large sinuses closely investing the liver cells and passing between them. In the walls of the blood-vessels in the liver of the adult they find two kinds of cells—small cells like endothelial cells, with very little protoplasm but not forming a continuous sheet, and large star-shaped cells (Kupffer's cells) which are phagocytic and frequently contain red blood corpuscles. They are not able to say whether the wall is a syncytium or whether it is composed of an incomplete layer, although they rather favour the latter view in regard to the animals investigated by themselves.

In conclusion, Dr. HERRING and Dr. SIMPSON endeavour to explain the origin of the lymph in the liver and to account for the concentrated character of that lymph and its richness in proteids, facts which were demonstrated by Professor E. H. STARLING. They suppose that its concentrated character is due to the direct escape of the plasma into the liver cells and they suggest that it may pass from cell to cell and so reach the periphery of the lobule, being then passed into the interstices of the interlobular connective tissue and thence reaching the lymphatics; but they admit that the manner of this transference is at present undetermined. The research, as a whole, is a model of its kind, carefully conceived and ingeniously and impartially carried out, the conclusions arrived at are clearly detailed, while ample justice is done to the work of other observers. It is not too much to hope that light may be thrown on some of the pathological processes in the liver from the increased knowledge of its structure here afforded.

The Surgery of Christmastide.

THAT the present period of the year brings much work for the physician is obvious on the slightest consideration but at first sight it is by no means so clear that for the surgeon also the time of Christmas provides work to be done. We have no wish to exaggerate the surgical dangers of this season of the year, no wish a tale to unfold whose lightest word would harrow up the soul, nor do we even, with the fat boy of WARDLE, want to make the public's flesh creep with the surgical horrors of Christmas, but it is, to say the least of it, interesting to consider what work Christmas provides for the surgeon. The feasting which appears to be almost inseparable from the idea of Christmas is responsible for more than impaired digestion, though the dyspepsia which it induces refuses to be ignored, and should a gastric or duodenal ulcer be present there is little doubt that the extra work given to the stomach and the extra tension due to the repletion of that organ might just suffice to cause that ulcer to give way and perforation to occur. We would not for a moment suggest that this dire result is for any intrinsic reason more likely to occur at Christmas than at any other time of festivity or that we meet with any special number of cases at this time, but it is at least certain that a generous meal is a frequent precursor of perforation of an ulcer of the stomach or duodenum. Should perforation occur the skill of the surgeon is imperatively needed, for by surgery only can recovery be brought about. In another part of the alimentary canal, however, disease is more common as a result of feasting, and that part is the appendix. Appendicitis definitely may follow an excessive meal and the explanation of such an occurrence is by no means difficult. We may dismiss from the mind all the

earlier accounts of raisin seeds and nutshells being found in an inflamed appendix, for though raisins are a popular addendum to a Christmas dinner we now know that all, or nearly all, of these "foreign bodies" found in the appendix are merely fæcal concretions. Over-distension of the upper portion of the large bowel is in all probability a frequent precursor of appendicitis. As the cæcum becomes distended the ileo-cæcal valve closes and escape upwards of the gaseous or liquid contents is rendered impossible. As the pressure still further increases it can readily be understood that the passage of intestinal contents into the appendix vermiformis becomes easy. It is probable that in health the appendix contains no fæcal material but with a raised tension in the cæcum there is nothing to prevent the invasion of the appendix. This may at once give rise to an attack of appendicitis, or, more probably, will start a slow process which will ultimately weeks or months later lead to an acute appendicitis when the conditions are favourable. The torsion of the appendix from the shortness of its meso-appendix occurring as the result of great distension of the cæcum cannot fail to assist in the production of an appendicitis. It is thus clear that a Gargantuan feast may produce serious troubles other than those immediately resulting from dyspepsia.

As Christmastide is often a time of frost and snow the risks of falls with their consequences are great; and these risks are materially increased when, as is especially likely to happen at Christmas, there is a definite loss of coördination produced by alcohol. It is the experience of most hospitals that a frosty Christmas night is especially productive of fractured legs and skulls. We would not for a moment suggest that there is any necessary causal connexion between excess of alcohol and a broken leg at Christmas, for the misfortunes of breaking a leg by falling may occur at this season to the strictest Rechabite or the soberest Son of Temperance. When a thaw melts some snow and a succeeding frost freezes the water before it can run away a surface is produced on which it is almost impossible to stand and numerous fractures result as a matter of course. All the misfortunes and accidents which we have mentioned are not necessarily connected with the period of festivity which occurs at Christmas but there is one serious surgical condition in which such a close connexion is to be seen. It is very usual at children's parties on Christmas Day or thereabouts for someone to dress up as Father Christmas or Santa Claus. We do not like to express any authoritative opinion as to the identity or non-identity of these two personages; they agree, however, in costume according to the usual representations and one essential is a long white beard. Cotton-wool at once suggests itself as a convenient material for the manufacture of the beard and it has been widely employed for this purpose. Unfortunately, cotton-wool is exceedingly inflammable; the separation of the constituent fibres is almost complete, so that a flame flashes through it with the utmost rapidity; in fact, if we exclude the explosives there is probably no other substance which so readily takes fire as the ordinary "absorbent" cotton-wool. One of the functions of a Father Christmas is to remove presents from a Christmas tree and no respectable Christmas tree is without numerous lighted candles. Thus it has come to pass on many occasions that the personator of Father Christmas has suddenly burst into flame, at least so far as his long white beard and flowing whiskers are concerned. Many severe burns have resulted from this mischance, though we cannot call to mind any fatal case. Another duty often devolving on Father Christmas is the carrying in of the dish of snap-dragon, which is compounded, we may mention for the benefit of the uninitiated, of raisins and brandy, or spirit of wine, to which a light has been put. The appearance is striking and the attempts to snatch the raisins are productive of much amusement to the children and the onlookers; but the risks run by the beard of Father Christmas are enormous and several cases have been recorded in which severe burns have been the price he has had to pay for his well-meant efforts.

A few years ago a number of children were covered with cotton-wool in an attempt to represent a Christmas scene. The effect was doubtless pleasing, until in one way or another, by one of the children coming into contact with a candle on a Christmas tree or by the fall of a Chinese lantern, a flame was started amongst the children; it spread rapidly from one to another until they were all ablaze. In all the burns were severe and one succumbed to the injury which she had received. This is no isolated case; it is only one of many. Every winter at about this time we hear accounts of severe burns, ending in some cases in death, from the catching fire of cotton-wool used for ornamental purposes. The public does not recognise the extreme inflammability of cotton-wool. A very simple experiment will serve to demonstrate it to the greatest sceptic. We fully acknowledge that the percentage is very small in which burns occur when we take into consideration the very wide use of the material for "dressing up," but the catastrophes are so very awful, the scene of pleasure and innocent enjoyment being turned to one of intense pain or death, that our protest cannot be considered unreasonable when we urge that cotton-wool should never be used for the fancy dresses of children or even for the beard of Father Christmas. It is well worth while to make an attempt at finding a non-inflammable substitute for cotton-wool. Of course, real wool is much less inflammable, though more expensive. But if cotton-wool must be used candles on the tree and indeed all naked lights should be strictly prohibited. The use of electricity now renders this possible.

Annotations.

"Ne quid nimis."

THE MEANING OF THE SOILING OF THE SNOW.

CONTRARY perhaps to what might be expected, a fall of snow has a purifying effect upon the air equal to, if indeed not greater than, that produced by a storm of rain. Possibly when the snowflakes are absolutely dry they would fall to earth practically unsullied by atmospheric impurities. It is rarely, however, that snow is quite dry and thus it presents a more or less moist surface to both the soluble and suspended impurities of the air and so carries them to the earth. The action as regards suspended impurities may be compared with the clarifying effect of a fine insoluble powder which when thrown into impure water gradually subsides, carrying with it a large amount of the impurities.

The process in natural waters is known as purification by sedimentation. Snow, of course, is colder than rain and hence would have a greater dissolving capacity for gases since these are more soluble in cold than in warm menstrua. Tradition has it that after a fall of snow men feel stronger owing to the exhilarating effects of the snow-swept air. Science at all events cannot quarrel with this conclusion inasmuch as it is easily demonstrable that the air is purer and sweeter after a fall of snow. Exercise in the snow is remarkably bracing as is seen in the glow of health invariably shown on the face of those who sleigh, ski, toboggan, skate, or whose pastime is the simple one of snowballing. Apart, however, from the removal of impurities by snow there is some reason for believing that the vital qualities of air are intensified by some obscure action of the snow on the oxygen of the air, forming perhaps ozone or even oxygenated water, as peroxide of hydrogen is sometimes called. Snow-swept air at all events, especially if it be dry, readily responds to the ozone test paper, and the peculiar "metallic" smell of the air after a heavy snowfall is doubtless due to ozone or a closely related substance. That the heavy fall of snow which took place in the early hours of the day after Christmas Day removed a great mass of impurity from the air in London is plainly indicated in the results of the analysis which we made of the snow taken from the roof of THE LANCET offices. The results of the analysis of the clear snow water were as follows:—

	Grains per gallon.	
	London.	Kent.
Free ammonia	0·067	0·030
Organic ammonia	0·039	*Nil*
Nitrates and nitrites	*Nil*	*Nil*
Chlorine	0·840	0·630
Common salt	1·400	1·050
Sulphuric acid	1·730	*Nil*
Total solid matters	5·60	1·68
Tarry compounds	1·40	Traces

The evaporated residue had a marked tarry smell and brownish fumes smelling exactly like coal tar were evolved on heating. The origin, of course, of empyreumatic substances is coal smoke and the presence of so much ammonia and sulphur, as is indicated in the analysis, is to be ascribed to the same source. Hundreds of tons of these impurities, tar, ammonia, and sulphur, must therefore have been brought to earth by this recent snowstorm. It is interesting to compare with these results the analysis of the snow which fell at the same time but on the lawn of a country garden in Kent some 12 miles south of the metropolis. For the sake of making easy comparison the results are placed side by side with those obtained with snow which fell in London. It will be seen at once that the impurities in the Kent sample are very much less, and, in fact, the water obtained on melting this snow was nearly identical with distilled water. There was absolutely no sulphur or organic ammonia and the evaporated residue failed on heating to give off the slightest smell indicating coal-tar compounds. The results are striking and instructive, for they bring out clearly the fact of the pollution of the air by coal smoke within the metropolitan area, while only 12 miles outside, on the edge of the suburban area, the pollution is comparatively trifling. This fact should be a source of satisfaction to those who live outside London and should afford to them some compensation for the trouble of taking a daily journey to and from the metropolis in order to reach their places of business. It should be pointed out further that this snowstorm occurred in holiday time, when most manufacturing works were shut down. The domestic coal fire therefore clearly aids and abets the air-contaminating process. It would be interesting if from time to time regular analyses of the rain, snow, or hail were made, since the results would show to some extent the kind and amount of impurities washed out of the air at different seasons. Such examinations might indicate also whether the crusade against the smoke nuisance was meeting with success or failure.

MEDICAL MEN AND NUMISMATICS.

THE interest taken by medical men in numismatics has always been noteworthy and our readers will doubtless remember that the magnificent collection of coins in the possession of the University of Glasgow was bequeathed to it by Dr. William Hunter. It is interesting to record in the columns of THE LANCET an instance of a medical man, this time in the person of one happily still with us, presenting his collection to the British Museum. We reproduce the following particulars from the *Athenæum* of Dec. 1st, 1906, by the courtesy of the editor of that journal:—

By the generosity of Dr. F. Parkes Weber the trustees of the British Museum have acquired a most remarkable numismatic collection. Dr. Weber placed his cabinet in the hands of the authorities of the Museum, with permission to select everything that might be deemed desirable, and as a result no fewer than 5651 pieces have been added to the national collection. The donor's tastes in numismatics were most catholic, and the objects selected represent all branches of the study, from the early coinage of the Greeks and Chinese down to the modern revival of the medallic art. Numerically regarded, the importance of the donation perhaps consists especially in the modern medals, and it can no longer be said that artists such as David d'Angers, Roty, and Scharff are unrepresented in the British Museum. But from an artistic point of view the chief treasures are two fine leaden specimens of medals by the greatest of all medallists, Vittore Pisano, and, for those to whom the German medal of the middle of the sixteenth century appeals, a unique portrait of the famous Paracelsus. Among the curiosities of the collection may be reckoned sections illustrating token coinages, primitive forms of currency, the technical processes of die-engraving and casting, and methods of forgery. Dr. Weber's munificent gift constitutes one of the most valuable additions which have ever fallen to the lot of the Department of Coins and Medals in the British Museum.

We understand that the trustees of the British Museum had the choice of nearly the whole of Dr. Parkes Weber's collection and that the authorities of the Guildhall Library and the Bodleian Library at Oxford were allowed to select what they wanted from the coins and medals, specimens of which were already in the possession of the British Museum and so not required by the trustees. We are informed that Dr. Parkes Weber had previously presented to Dr. H. R. Storer for his collection in the Boston Medical Library, U.S.A., a nearly complete series of "touch-pieces" used by the Stuart sovereigns of England and the "Pretenders" ("James III.," "Charles III.," and "Henry IX.") in touching for the King's evil, as well as a curious seventeenth century token (with the inscription "He touched them and they weare healed") figured by Pettigrew in his work on the subject, and several medals bearing portraits of medical men. Dr. Storer has devoted much of his life to the subject of numismatics and has been, and is still, engaged in publishing a description of medals relating to medicine which (so far as he has yet gone) is by far the most complete account in existence. Dr. Josef Brettauer of Trieste, who died in 1905, unfortunately never published a complete catalogue of his peculiarly valuable collection of medical medals, which he had spared no pains to make as complete as possible, but it is satisfactory to know that he bequeathed the whole of it to a public institution—namely, to the University of Vienna. It will be seen from the above extract from the *Athenæum* that Dr. Parkes Weber's gift is much appreciated by the authorities of the British Museum and we congratulate him on his generous thoughtfulness in thus placing his collection at the disposal of British and other students of numismatics we trust for all time.

DUTY-FREE ALCOHOL FOR MEDICAL PURPOSES.

NOT long ago the Government made an important concession to manufacturers in this country who employ alcohol for industrial purposes by allowing them to obtain pure spirit duty free. It was recognised that chemical enterprise and industry laboured under a great disadvantage in Great Britain compared with the conditions obtaining on the continent. This handicap has been removed and manufacturers may now obtain for industrial purposes alcohol undenatured—namely, unmixed with naphtha—at its intrinsic cost—that is to say, free from tax. Such alcohol is known as industrial spirits of wine. A correspondent

has suggested to us that a similar concession should be granted to medical men who employ alcohol for external use. It is cheaper, he says, than methylated spirit and would be, he adds, of great advantage to medical practitioners not only for outward applications but for museum and laboratory purposes, since it is pure alcohol of 90 per cent. strength. He suggests that a simple order from the revenue authorities that industrial alcohol might be supplied for the purposes of medical practice otherwise than consumption is apparently all that would be required to make this untaxed pure spirit available for use. Methylated spirit, of course, contains about 62 per cent. of alcohol, with 10 per cent. of wood spirit and 0·3 per cent. of mineral oil. It possesses, however, an unpleasant odour due chiefly to the wood spirit. This itself is a drawback, besides which naphtha proves so often to be irritating that pure spirit of wine has frequently to be used even in hospital practice, althoughthe latter pays duty to the revenue at the rate of 16s. per gallon. Hence, in the words of our correspondent, "the healing art is subjected in this particular to a crushing tax and the use of pure alcohol is gravely restricted." The suggestion is one which we should think would commend itself to the revenue authorities provided they can be convinced that the privilege is not likely to be abused.

THE WESTMINSTER PLAY.

TRUE to her sound old tradition the great metropolitan school, which has had under her care in their youth so many distinguished members of the profession of medicine, has wound up the year with that brilliant combination of the "utile" with the "dulce," the Latin play. This time it was the *Phormio*, a comedy that from first to last goes as merry as wedding bells—a comedy which so commended itself to the genius of Molière that he did for it what Terence did for the original of Apollodorus, "adapted" it for the stage while rendering it in the language of his fellow citizens. To say that, as given at Westminster, it "scored a success" is only to repeat what has times without number been said of its previous representation on the same boards—with an excellent "company" brought up to efficiency by careful rehearsal and stimulated to do its best by an audience at once distinguished, sympathetic, and appreciative. From the masterly second scene of Act I.—a scene which, according to the great Italian critic Bindi, is unsurpassed in comic drama—to the concluding scenes in which, like all its Latin congeners, the play ends in a wedding, the acting was maintained at a high level, the performers being in all cases equal, in some more than equal, to their respective parts. The prologue with its touch of pathos—its pauses at the tombstones of Old Westminsters on "life's Appian Way"—was well given, while as to the epilogue it was, in matter and recital, inferior to none of its predecessors for those hits at the follies or the grotesquer incidents of the hour which, as has been remarked, would make the series, if published, a sort of Latin "Punch's Almanac" of their several years. Apart, however, from the merits of the performance, the Westminster Play has reached the dignity of an "institution" which has not only been made the subject of that sincerest of flatteries, "imitation," but has given point to useful discussion at such congresses of the teaching profession as the annual meetings of the classical associations of Scotland and of England and Wales. The educational value of the performance has been insisted on by scholars of eminence as unique—giving to the classically trained youth an interest in the language which no other method could impart; strengthening the memory while also enriching it; and clothing the dry bones of grammatical rules with the living, pulsating tissue of humanity. Consummate Latinists like Stampini of Turin and Cocchia of Naples have pointed out that in the interpretation of dramatic poets like Plautus and Terence, or of orators like Cicero, an attitude, a gesture, an intonation of the voice, bring out the author's meaning with a clearness and effect attainable through no commentary or lexicon; indeed, editions of these masters are now published where indications, equivalent to "stage directions," form part, and that an important one, of the critical exegesis. Into the larger question of whether there is time for such teaching in our public schools, or whether, indeed, the classical tongues should have their traditional place in education at all, we cannot enter now. But if they are really worth acquiring for the discipline which they impart and the refinement which they convey—if, in other words, they are an effective "propædeutic" for the liberally educated professional man—then there can be no question that they should be taught well—taught in the sense now universally acknowledged by the best scholars at home and abroad, as exemplified, moreover, by the tradition so long and so honourably upheld by St. Peter's College, Westminster.

PATHOGENIC PROTOZOA.

AN interesting summary of our present knowledge of the protozoa was given in a lecture delivered before the University of London on Nov. 15th, 1906, by Mr. E. A. Minchin, professor of protozoology. After discussing the classification of the lowest forms of animal and vegetable nature, he defined a protozoon as a unicellular organism of animal nature, an organism in which the entire body was a simple undivided mass of the living substance or protoplasm, and was to be regarded as forming a vital unit. The study of the protozoa was a science of very recent origin and was known as protozoology. Many of these organisms lived as parasites of other animals and might produce diseases in them. For this reason the investigation of the protozoa has, like that of the bacteria, become of immense importance in medical and veterinary practice and protozoology has therefore taken shape as a definite science just as bacteriology did before it. Professor Minchin said that it was only in the last decade that medical men in general began to regard protozoa as of equal importance with bacteria in the causation of disease, but some pathogenic protozoa had nevertheless been known for at least a quarter of a century. Professor Robert Koch of Berlin has drawn attention to three great discoveries, each of which opened up the way for a new line of investigation and indicated the true cause of diseases previously mysterious in their nature. The first was the discovery of the malarial parasites by A. Laveran in 1880. The second was the discovery of the parasites of the so-called Texas fever of cattle in America by Smith and Kilborne in 1893. The third was the discovery of the parasites of tsetse-fly disease in Africa by Colonel David Bruce, R.A.M.C., in 1895. The malarial parasite was the first to become known. Laveran was a surgeon in the French army and his great discovery, which was received everywhere with disbelief, was made in the military hospital at Constantine in Algeria. The mode of entrance of the parasite was for some years a mystery. Sir Patrick Manson was the first to suggest that mosquitoes might play a part in the transmission of malaria from sick to healthy persons and Professor Ronald Ross, at that time an officer in the Indian Medical Service, verified this conjecture. It was found, however, that a remarkable relation existed between the species of mosquitoes and the species of malarial parasites. The common gnats, for instance, belonging to the genus Culex are incapable of transmitting the malarial parasites of man but convey those of birds from one bird to another. The mosquitoes which carry the malarial parasites of man belong to the genus Anopheles and are incapable of

transmitting the malarial parasites of birds. The researches of Ross demonstrated for the first time in the protozoa a complete life-history in which the parasites undergo two distinct cycles of reproduction in two different hosts. The second important discovery mentioned above, that of the Americans Smith and Kilborne, concerns a fatal epidemic disease of cattle and other animals, sometimes termed "red-water." These parasites are transmitted by ticks but not quite in the same way as malaria is transmitted by the mosquito; they are tiny pear-shaped bodies which multiply in the blood corpuscles. The tsetse fly somewhat resembles a common house fly. The disease which follows its bite causes a great mortality among domestic animals by the inoculation of a specific trypanosome which, as already mentioned, was discovered by Colonel Bruce. This trypanosome does not affect the human subject but sleeping sickness, which is caused by a trypanosome of a different kind, carries off a great many native Africans and has proved fatal to a few European visitors.

THE CHANGES OCCURRING IN MEAT ESSENCES KEPT IN TINS.

SOME months ago the Local Government Board was informed by a firm of manufacturers that a difficulty had arisen in their business in connexion with the return to the United Kingdom of tins of beef essence which had been prepared by them several years ago, which, in fact, had been sent out to South Africa during the war. A large stock of these tins being no longer required for use in the army had been sold and certain consignments of this stock had recently found their way to this country and the manufacturers believed that the condition of these essences was not satisfactory. Subsequently a large consignment arrived at Southampton from South Africa, 3900 tins in all, valued roughly at £700, and Mr. R. E Lauder, the medical officer of the borough and port of Southampton, reported the fact to the Local Government Board. Dr. G. S. Buchanan was instructed to confer with Mr. Lauder and to make some inquiries regarding the condition and disposal of the articles in question. On examination of some of the tins of beef essence the following points were noted. The sound produced by shaking the tins indicated that the contents were quite fluid and this was found to be the case in opening the tins. By contrast, new samples at the same temperature were in the form of jelly. All the fresh samples were clear and amber-coloured, whereas the contents of the tins returned from South Africa were turbid and their colour might be described as a rather dirty yellow. The appearance of the surface in the case of the old essences was dull, whereas that of the new essences was bright. There was no smell indicating decomposition in any of the samples examined and the inner surface of some of the tins examined appeared comparatively bright, though in some of them dark patches were observed. Bacteriological examination proved the contents to be sterile and there was no evidence that the gelatin had undergone degradative changes. Eventually, Dr. Schryver, D.Sc., found that the material change which had taken place resulted from metallic contamination. The essence had dissolved tin from its receptacle and the turbidity of the essence was due to the subsequent precipitation of tin in organic combination. Metallic tin was present in amount between 0·02 and 0·03 per cent., or roughly between one and a half and two grains per pound of essence. In one essence the amount of metal was found to be as much as 22 grains per pound. This amount of contamination might be expected to occasion symptoms of acute poisoning in Dr. Schryver's opinion, but it is doubtful whether the small amount found in the generality of samples would give rise to deleterious results. Still, in special circumstances, as, for example, in the case of invalids or when the essence is being taken for a long time, even the minutest amount of metallic impurity present is distinctly open to objection. Dr. Schryver suggests that the solvent action on tin is due to the presence of organic acids, such as lactic acid and carnic acid. The metal is first dissolved and then thrown out in the form of an organic salt. The manufacturers have adopted the precaution of stamping the date of manufacture on the wrapper of every tin of meat essence which they issue. It is stated that these changes in the appearance of tinned meat essences are quite unusual in the experience of manufacturers and retailers in this country. In this connexion we have pointed out [1] how the action of fruit acids in preserves may be successfully prevented by coating the tin with a lacquer of shellac or similar substance. Otherwise only glass vessels should be permitted for the purpose. The public would do well to be on their guard in this matter and should have nothing to do with meat essences unless they are brilliant in appearance, firm and not liquid, and of a good clear amber colour

A HISTORICO-MEDICAL CALENDAR.

FOR a series of years our German colleagues have had in "Spemann's Historischer Medicinal-Kalendar" a record of the history of the healing art as embodied in the lives of its past masters which is at once an exemplar and a stimulus to all members, young and old, of the profession. Day by day the German practitioner, the consultant, the clinician, and the teacher may read, suspended in his library or consulting room, the name, the life, and the work of some distinguished surgeon or physician, anatomist or physiologist, university teacher or hospital administrator, and begin his morning's work with the encouragement and the inspiration to be drawn from a noble, often an epoch-marking career. In a few well-chosen words the said career is impressively told, with the aid, wherever possible, of a portrait reproduced from the best available likeness of the hero of the day. Side-lights are also thrown on the subject by pictures on a small, but vividly effective, scale of the scene of the professional man's work, or of some contemporary incident bearing on his life and its achievements—the whole, as has been said, constituting in daily instalments a history of medical genius and endeavour, stimulating, inspiring—shall we say sometimes consolatory?—to the practitioner or the teacher before facing his patient or his class. German in its inception and its editorship—it is issued under the auspices of Dr. Julius Pagel, professor of the history of medicine in Berlin, and a highly competent coadjutor, Dr. J. Schwalbe, of the same university—it gives, naturally enough, the preference to compatriot heroes, though it is but fair to add, wherever outstanding merit has a claim, no trace of "pan-Germanismus" is visible, but the Englishman, the American, the Italian, the Frenchman, or the Russian all get their share of recognition and eulogy. Opening the "Kalendar" at random we alight on excellent portraits and notices of the late Sir William Fergusson, of Huxley, of Sir Humphry Davy, of Monro, and of Charles Murchison, among the British men of light and leading, while no European nationality can complain of being wholly unrepresented. All the same, we think that a similar calendar of purely British origin and editorship would be a welcome addition to our professional men's literary resources, doing for them what the German "Kalendar" has done so long and so effectively for the practitioners and teachers of the Fatherland. Grand historical figures like those of William Harvey, of Thomas Sydenham, of Edward Jenner, and of John Hunter would represent the "Dii Majorum Gentium" of

[1] THE LANCET, Feb. 24th, 1906.

English-speaking medicine, while, as to lesser but still brilliant lights, they wellnigh constitute a multitude "which no man can number." Preference having been given to them wherever a "day" can be found for them in the calendar the intervals might be filled up, as in its German counterpart, with names drawn from the continental roll-call—in due homage to the "catholicity of medicine" and the "brotherhood" which makes the whole world of science kin. Such a publication could not but commend itself to the practitioners or teachers in these islands or on the other side of the Atlantic, and we venture to throw it out as a hint for a "new departure" in medical literature for 1908.

OLD VIEWS ON COLDS IN THE HEAD.

THE ancient belief that catarrh was caused by a flux from the brain may be said to have died very hard. As late as the reign of Queen Anne—a period supposed to mark the zenith of what the late Mark Pattison called "The Age of Reason"—we find James Handley, a popular writer on health, accounting for "the seat" of catarrhs and "rheumes" quite in the time-honoured manner. "Fernelius," says he, "saith, besides serum within the cranium, there's other excrements gathered in the external parts of the head, especially under the cutis of the vertex, where the vessels have their extremities, which when they grow turgid, with too much serum or other humour, they shed forth under the skin that which they cannot carry off, and there it remains, because the thickness and looseness of the *cutis* permits it not to evaporate; and there's sometimes so great a *collection* here, that it causeth a soft swelling, that manifestly heaves up the *pericranium* from the *cranium*." This, the writer avers, is assuredly the source of all external "distillation," and he marvels that the ancients never noticed what to him is demonstrable truth. "Hence," says he, "Rheumes fall into the eyes, cheeks, teeth, neck, shoulder-blades, sides, back, loyns, hips, thighs, and all the joynts, and this is certainly the foundation of every external pain, particularly in a catarrh." The habit of taking snuff was believed by our ancestors to be a means of clearing the brain of "rheums" and "humours," and it is a question whether some such belief does not linger even at this day among primitive snuff-taking peasants.

DEATH FROM EXPLORATORY PUNCTURE OF THE CHEST.

IT is not sufficiently recognised that sudden death may result from paracentesis thoracis or even from exploratory puncture. Attention was first called to this fact in 1893 by Dr. George Carpenter. The *American Journal of the Medical Sciences* for December contains an important paper on the subject by Professor G. G. Sears of the Harvard Medical School. On analysing ten recorded cases of fatal exploratory puncture he found that in at least eight a solidified lung was the cause of the ambiguous signs and was punctured by the needle. Seven of the patients were children. In Vol. XXVIII. of the St. Thomas's Hospital Reports Dr. A. E. Russell reported three cases of fatal exploratory puncture of the lung and one fatal case of paracentesis thoracis. From a careful study of these cases and from experiments performed on animals he concluded that death was due to reflex inhibition of the centres in the medulla from irritation of the pulmonary filaments of the vagus rendered unduly sensitive by the inflammation. In some cases death did not immediately occur but was preceded for several days by unconsciousness and convulsions which Dr. Russell attributes to cerebral anæmia resulting from the fall of blood pressure. In other cases, as shown by Dr. Carpenter, death was due to asphyxia resulting from hæmorrhage into the air passages. Professor Sears reports the following case. The patient was a man, aged 40 years, under the care of Dr. J. L. Morse in the Boston City Hospital. There was effusion into the left chest reaching as high as the third rib. On July 10th 64 ounces of bloody fluid were removed by aspiration. The symptoms were relieved but the temperature remained elevated and the fluid re-accumulated. On August 1st it was decided to aspirate again. This prospect produced no mental perturbation (which has been considered a possible factor in the fatal cases). The patient did not wince when the needle was introduced but he almost immediately became cyanotic and pulseless. The needle was at once withdrawn. Attempts at stimulation failed and he remained unconscious and died 15 minutes later. The necropsy showed several hundred cubic centimetres of bloody fluid in the left pleural cavity, and the left lung collapsed and containing only a little air in the upper lobe. It was covered with a membrane from one to two millimetres in thickness. Scattered through this and over the parietal pleura, which was also thickened, were numerous small grey tubercles. Careful examination of the lung failed to show any tuberculous focus. There was acute glomerular nephritis. It did not seem possible that the needle could have reached the pulmonary branches of the vagus. The moral of such cases is, as pointed out by Dr. Carpenter, that exploratory puncture of the chest should never be regarded as a trifling operation and never resorted to, as it sometimes is by house physicians and others, until all ordinary methods of examination are exhausted. During exploration the pulse and the respiration should be carefully watched and any signs of failure promptly treated. Brandy may be administered before operation. Dr. Thomas Oliver, who has observed four cases of fatal puncture of the chest, advises the avoidance of the sitting posture during operation.[1]

"CHRISTIAN SCIENTISTS" AND PRECAUTIONS AGAINST INFECTION.

IN commenting upon the case of Mr. Robert Chisholm in THE LANCET of Dec. 1st, 1906, p. 1535, we spoke of the effect which the attitude of the "Christian Scientist" towards medical science might have in the case of dangerous infectious diseases contracted by members of their families. Our observations appear to have been taken by some members of the sect to imply that they disregard sanitary precautions and refuse to notify infectious disease or to take steps to prevent it from being spread among their neighbours. One gentleman in addressing us has explained that in his own case "when our children had measles, although no doctor was in attendance and no medicine was given, nor any attempt made to follow the usual medical treatment, we did consult a doctor to find out whether it was a notifiable disease; we steeped all the dirty clothes in disinfectants and notified the laundry so that they might keep the things separate." Our article must have been misread, for if our correspondents will refer to it again they will find that we did not say that they refused to notify infectious disease or to take precautions against infection. What we did suggest was, that if no medical man is employed an infectious disease may in all probability not be recognised as such, at any rate at first, and that the persons responsible not being "aware" of the nature of the illness would incur no penalty for not notifying it. Moreover, whatever may be the course pursued by those who have written to correct us, we were not speculating upon what their conduct would have been but were commenting upon the actual case of Mr. Chisholm who did not call in a medical man, with the result that the diphtheria from

[1] THE LANCET, Jan. 2nd, 1904, p. 28.

which his son was suffering was not made known to the sanitary authority so soon as it might otherwise have been. The same correspondent seems to think that this did not make any difference, for he writes: "As little Chisholm did not feel ill until after he had been at school some time, what could any parent have done then to stop the infection? Even supposing that the other cases which appeared 18 days later were attributable to his case, was it quite fair to blame Christian Science?" The answer, of course, is that directly those responsible for taking proper precautions in such circumstances had had notice of what had occurred they would have isolated and kept under observation those who had been in contact with the poor little lad who died, and if further spread of infection could not have been prevented altogether an opportunity would have been afforded for doing everything possible in such circumstances. We are very glad at the same time to hear upon good authority that "Christian Scientists" notify cases which medical men inform them are infectious and that they take some steps to prevent the infection of others. It may seem to us a little inconsistent that they should adopt "material remedies" (we believe the phrase is theirs) in order to prevent the germs of disease from spreading from a sick person to a sound one and that at the same time they should refuse to employ measures, possibly analogous, to prevent the same germs from multiplying and spreading within the body of the infected "Christian Scientist," but we hardly expect them to be consistent from our point of view, and perhaps they are able to draw distinctions between the two cases too subtle for us to appreciate.

THE WEATHER AND THE STREETS

IN every year in which a large fall of snow occurs the same difficulties arise in London as to the cleansing of the streets. Some of the municipal authorities appear to be much more successful than others and the City of London easily bears the palm for rapid cleansing of its streets. This, of course, is in part due to the comparatively small area of the City; but during the recent fall of snow, while Holborn and Marylebone dealt successfully with the snowfall, at least in the main thoroughfares, the condition of many of the streets under the rule of the City of Westminster was nothing short of a scandal. We do not complain of the snow being left during Boxing Day, for labour may have been difficult to obtain, but the condition of Regent-street and Piccadilly-circus throughout Thursday and the greater part of Friday was simply disgraceful. The Westminster authorities are addicted to the use of salt. This material is an admirable one for melting snow but the resulting slush should certainly be cleared away with hose-jets as soon as possible. What the Westminster authorities did was to convert Piccadilly-circus and Regent-street into a mass of porridge-like material which was left there until quite five o'clock on Friday afternoon. Our daily contemporaries have inveighed against the discomfort caused by this, but what we wish to point out is the extreme danger to health, to say nothing of the cruelty to horses, involved in leaving streets full of material the temperature of which approaches to 0° Fahrenheit. A mixture of snow and salt will get through almost any boot and it must be remembered that when leather has been thoroughly soaked with salt and snow it never dries. Regent-street and Piccadilly-circus are two of the most important thoroughfares in the West of London and, as a matter of fact, Regent-street is the most frequented artery of traffic running north and south between Chancery-lane and Bond-street. The City of Westminster has for some years been notorious for its dilatory method in street cleansing and management. We called attention to this fact in our issue of Dec. 13th, 1902, and again in our issue of Jan. 24th, 1903. On the last-named occasion the excuse given was that no ballast for gravelling the roads could be procured. What the excuse for the neglect upon this occasion will be we do not know, but to leave streets in such a condition as Piccadilly-circus and Regent street were left on Thursday and Friday is a menace to health and a disgrace to any body of men whose duty it is to keep clean the streets over which they have charge.

INDIAN FACTORY CONDITIONS.

AT a meeting of the corporation of Bombay held on Dec. 6th, 1906, a letter from the Secretary to the Government was read, announcing that the Secretary of State for India was sending Sir H. F. Smith to inquire into certain matters connected with factory conditions in India. On account of the special knowledge of Indian conditions possessed by Dr. John Andrew Turner, the executive health officer of Bombay, and in view of the importance of the inquiry to that city, the Secretary of State and the Government of India were anxious that Dr. Turner should be associated with Sir H. F. Smith in the inquiry. The Honourable Sir Pherozeshah Metha then said that nobody was better acquainted than Dr. Turner with the condition of labourers in Bombay and his advice would be very useful in the inquiry. Plague was also practically absent from Bombay and matters were improving in Poona. He therefore moved, and it was resolved, that the Government should be informed that the corporation was willing to allow Dr. Turner to be associated with Sir H. F. Smith in the inquiry but that in the event of plague increasing seriously he must return to his duties as health officer. The municipal commissioner was requested to make arrangements for carrying on the work of Dr. Turner during his absence on special duty.

THE USE OF CLAY IN SURGERY.

SINCE the introduction of clay, in the form of a poultice, into the last edition of the United States Pharmacopœia its use in surgery has attracted considerable attention. The clay is made into a thick paste with glycerine and is rendered antiseptic by the addition of boric acid and the oils of peppermint and wintergreen. This preparation affords an illustration of the truth of the old adage "*nil novi sub sole*," for it is recorded in St. John's Gospel that "He spat on the ground, and made clay of the spittle, and He anointed the eyes of the blind man with the clay." In parenthesis it may be remarked that no mention is made of the use of clay by St. Luke, the most likely of all the Evangelists to record a point of such medical interest. There is no doubt that in its modern form of application clay is of considerable value in reducing inflammation and in the treatment of boils and ulcers. Hence, it is of interest to refer to a book[1] published in 1872, wherein the use of earth in surgery is recommended on account of its sedative and deodorising action and its influence over inflammation, putrefaction, and the healing processes. Nearly 200 pages of the book are filled with clinical notes on 93 cases in which earth was used as a dressing. The cases cited included contusions, cuts, lacerations, severe burns and scalds, injuries to the eye, gunshot and shell wounds, eczema, fractures, amputations, fistula, hæmorrhoids, ulcers, abscesses, and carbuncles. From an extended consideration of the results of these cases the writer concluded in favour of the use of earth in surgery. He found that "a cool and pleasant sensation" was almost universally produced by applications of dry earth. In some cases, especially in burns and scalds, this dressing exercised a sedative action,

[1] Earth as a Topical Application in Surgery, by Addinell Hewson, M.D. Lindsay and Blakiston, Philadelphia.

but in others it aggravated the pain. In one of the cases mentioned a man who had fallen headlong into a vat of boiling dye experienced immediate relief from the dusting of dry earth upon one arm, and though writhing in great agony he eagerly held out his other limbs to be treated in the same way. The extent of the burns was, of course, such as to produce a fatal result, but he continued to beg for the earth until the last. The deodorising effect of earth was in all cases most positive and, as a rule, inflammation was reduced and putrefaction was prevented. The earth treatment also produced a rapid healing in the case of wounds, whether from operations or accidents, and was generally successful in curing ulcers. The earth employed by Dr. Hewson was rich in ferruginous clay and was entirely free from sand and grit. It was obtained from deep diggings and was well dried and sifted through a fine flour-sieve. Since Dr. Hewson's book was written the Listerian system of surgery, then in its early stages, has altered many of the notions that were commonly entertained. It is probable that the clear recognition by Lord Lister and his followers of the part played by bacteria in hindering the process of healing in wounds was largely responsible for the rejection of the earth method of treatment, owing to the variable constitution of earth and its liability to contamination with various impurities and organisms. Dr. Hewson, in fact, records a case of a woman badly burned and scalded who died from tetanus 12 days after the wounds were dressed with dry earth. It is quite possible that in dry earth we possess a dressing endowed with many of the properties most to be desired in the treatment of wounds. But to adopt earth would be setting back the clock 30 years. Fortunately, however, clay possesses many, and perhaps all, of the properties of earth without its drawbacks. It can easily be obtained, in the form of kaolin, in a state of cleanliness and sterility; it is highly absorbent, it allays inflammation, and has a high capacity for heat.

THE FRENCH CONGRESS OF CLIMATOTHERAPY AND URBAN HYGIENE.

THE third French Congress of Climatotherapy and Urban Hygiene will hold its meetings at various places on the French Riviera and in Corsica from April 1st to 10th, 1907. Easter Sunday, it may be noted, falls on March 31st. The members will meet at St. Raphael at 1 P.M. on April 1st and after a visit to the town will proceed to Cannes (by motor-car if the weather permits), where there will be a reception by the municipality in the evening. On April 3rd, after a banquet at Cannes, the members will proceed to Nice and take part in various entertainments, afterwards returning to Cannes. On April 4th there will be excursions to various places, the whole party arriving for the evening either at Monte Carlo or Mentone, where April 5th and 6th will be spent. On April 7th the party will proceed to Corsica. There will be nine official subjects of discussion, the first being on Chronic Diseases of the Respiratory Organs on the French Riviera; the last two will be on Hygiene at Mentone and on Heliotherapy. Membership of the congress is open to medical men of any nationality and to others who may be interested in its work. For members the subscription is 20 francs, payable to the general treasurer, Dr. Bienfait, Villa Marie-Louise, Boulevard d'Alsace, Cannes; for their wives and unmarried children accompanying them and for medical students it is 10 francs. The official language of the congress will be French. Speakers at the official discussions may not exceed ten minutes. Titles of papers may be sent to the general secretary up to March 1st, accompanied by a short summary of their contents; they must not require more than ten minutes for reading and speakers at the discussions on them must not exceed five minutes. The president of the congress is Dr. Calmette of Lille and the general secretary, from whom further information may be obtained, is Dr. Verdalle, 1, Boulevard d'Alsace, Cannes.

THE BARONESS BURDETT-COUTTS.

THE death of the Baroness Burdett-Coutts, which occurred on Dec 30th, 1906, in her ninety-third year, has produced a sense of loss throughout the English speaking world. A truly philanthropic woman, wise, open-handed, and sincerely religious, she exercised through many years a most powerful influence for good over the society in which she moved. Although Lady Burdett-Coutts made no great bestowal of money upon medical objects, her grand charity was largely directed towards that betterment of the vital conditions of her fellow men and women which it is the general aim of medicine to bring about. The memory of "The Baroness" will long remain green.

SPINAL ANÆSTHESIA.

THE latest accounts of spinal anæsthesia with stovaine do not support the sanguine hopes that accompanied the introduction of this still novel drug. It may now be accepted as a matter of history that with cocaine or with eucaine spinal anæsthesia is not only quite as dangerous as chloroform anæsthesia but is also quite as productive of unpleasant or dangerous after-effects. Severe headache, sickness, fever, and neuralgic pains are the symptoms which, by their frequent occurrence, led many to the abandonment of this form of spinal anæsthesia. When stovaine, the hydrochlorate of amylene, a synthetic product derived from amylic alcohol, was introduced those who used it in France were enthusiastic as to its safety. They found it to be not so useful by reason of its weaker analgesic powers as cocaine for local or regional anæsthesia, but for spinal anæsthesia it appeared to be perfectly adequate and by its lower toxicity far more desirable than cocaine and eucaine. Now, however, the other side of the picture begins to appear. The drug has been comparatively little used but we find already a report in the *Medical Review* of a fatal case of paralysis in the practice of Professor König of Munich. The case was that of a man aged 35 years who was operated on for fractured patella. A dose of 0·06 gramme of stovaine was injected between the third and fourth lumbar vertebræ into the subdural space after evacuation of a small (unstated) quantity of blood-stained cerebro-spinal fluid. The body below the umbilicus became anæsthetised within 15 minutes. On the morning after operation there were complete motor and sensory paralysis of the lower limbs and loss of power over the bladder and the rectum. The only change in this condition before death about three months later was that for a short time the paralysis ascended to the diaphragm, embarrassing respiration. At the necropsy the spinal cord in its dorsal and lumbar regions was "diffluent, escaping like pus when incised." No evidence was obtained of infection of the cord, and cerebro-spinal fluid withdrawn about two weeks after the original injection and examined bacteriologically was found to be sterile. A case such as this, where death in a most distressing form overtakes a healthy man purely as the result of anæsthesia, is enough to give serious pause in the adoption of the method employed. We are fully prepared to admit that although danger in expert hands is practically a negligible quantity with the methods of general anæsthesia now in vogue in this country, yet there is plenty of room for improvement in other respects. Spinal anæsthesia, however, does not at present at any rate, bid fair to abolish unpleasant after-effects or to provide in ordinary hands a means of greater safety than is furnished by general anæsthetics in the average case. A curious phenomenon that has now been fairly frequently noticed after spinal anæsthesia is paralysis of the sixth cranial nerve

The paralysis has never yet proved lasting; it has been reported after the use of stovaine and also of novocaine. It seems possibly to be due to a basic hæmorrhage, though toxic peripheral neuritis is also suggested as the cause.

THE LATE DR. WILLIAM KELLY OTIS.

A TOUCHING tribute to the memory of the late Dr. W. K. Otis was paid at a meeting of the second section of the American Urological Association held in New York on Oct. 24th, 1906. Dr. Otis, who was Vice-President of the second section, had died on Sept. 22nd and it was shortly afterwards arranged that a statement or resolution expressing the Association's sense of the loss which it had sustained should be drawn up by a committee consisting of Dr. Ramón Guiteras, Dr. A. Ernest Gallant, and Dr. Ferd. C. Valentine. At the meeting held on Oct. 24th, Dr. Winfield Ayres, the President, officially announced the death of Dr. Otis, and the committee submitted a statement showing how deeply the sad event had impressed the members of the American Urological Association. Most of them knew him intimately from his childhood; by his decease they had lost a constant friend, a charming companion, and a most esteemed colleague. The Association had lost one of its founders, one of its most active coadjutors, and one of its truest adherents. The statement was approved by the meeting and directed to be entered upon the minutes.

POST-GRADUATE CLASSES AT THE ROYAL INFIRMARY, GLASGOW.

THE winter term of the post-graduate classes at the Royal Infirmary, Glasgow, will begin on Jan. 14th, and the summer term on April 22nd. The date of the autumn term is not yet announced. During 1906 the classes were well attended, especially during the autumn term, which seems to be the most convenient for practitioners coming from considerable distances as well as from abroad. The aggregate number of meetings was 255 and the subjects included general clinical medicine and clinical surgery, together with practical instruction in such special subjects as diseases of the eye, ear, skin, bladder and kidney, and throat and nose, as well as in gynæcology, neuro-pathology, hæmatology, bacteriology, electro-therapeutics, and surgical technique. The instruction is of a thoroughly practical character, which is rendered easy by the fact that the Royal Infirmary contains upwards of 600 beds and presents an unusually wide clinical field. The classes in the approaching winter term will continue till about the end of February. With the exception of gynæcology and bacteriology, the fees are one guinea for each class, or two guineas for attendance in any three classes. Practitioners intending to join any of the classes should apply to Dr. J. Maxtone Thom, the superintendent of the infirmary, who will supply copies of the syllabus and give any further information which may be desired.

Mr. William Bryce Orme, M.R.C.S. Eng., has been granted the Royal licence and authority to wear the Insignia of the Fourth Class of the Imperial Ottoman Order of the Medjidieh, conferred upon him by His Highness the Khedive of Egypt in recognition of valuable services rendered by him.

STOCK of the value of £40,000 has been handed to the trustees of the Imperial Cancer Research Fund, being a portion of the £100,000 recently given to charitable objects by Mr. and Mrs. Bischoffsheim in commemoration of their golden wedding.

THE Presidential address of the Incorporated Society of Medical Officers of Health will be given by Dr. D. S. Davies of Bristol on Jan. 11th. The annual dinner of the society will take place on the same evening at the Holborn Restaurant.

A TELEGRAM from the Governor of the Mauritius, received at the Colonial Office on Dec. 28th, 1906, states that for the week ending Dec. 27th there were 8 cases of plague and 7 deaths from the disease.

THE next session of the West London Post-Graduate College will open on Monday, Jan. 14th.

A SHORT REVIEW OF THE RESULTS ACHIEVED BY THE JAPANESE ARMY MEDICAL SERVICE DURING THE RUSSO-JAPANESE CAMPAIGN OF 1904-05.[1]

BY PROFESSOR DR. KOIKE,

STAFF SURGEON-GENERAL OF THE IMPERIAL JAPANESE ARMY; PRESIDENT OF THE JAPANESE SOCIETY OF MILITARY MEDICAL OFFICERS.

ALL my statistics are based on the figures supplied by the medical division of our War Office published during April of the past year.

1. *Number of sick and wounded.*—The war lasted 21 months. The number of wounded was 220,812. Of these, 47,387 fell on the field of battle, whiche quals 1 : 3 66. In this total are included the following of the Army Medical Service: army medical officers killed, 19; army medical officers wounded, 104; total, 123, corresponding with 2·7 per cent. of the total number of 4517 military medical officers who took part in the campaign. Of the rank and file of the Army Medical Corps—excluding the temporarily employed stretcher-bearers, &c.—there fell or were wounded 450, which makes all told 573 casualties, or 0·25 per cent. of the total number wounded. The officers and men of the Army Medical Corps, who had been attached for duty to the various branches of our service, were as much exposed to the dangers of hostile fire as the combatant officers; indeed, they were often exposed to greater risks, as they had to stop and attend to the wounded at once on the spot. It cannot be made known too often or too widely that in our army both the officers and men of the Army Medical Service hurried to the assistance of the wounded even during the most furious battles. Our medical staff did their duty while exposed to the hottest fire, even to that of the machine guns. During these trying moments they devoted their lives to their noble calling in a manner precisely similar to that of the combatant officers. The number of sick received into hospital was 236,223, which includes 27,158 cases of infectious disease, this number being slightly in excess of the number of wounded recorded. Apart from the sick and wounded who were with the army in the field we had to deal with 97,350 sick cases in hospital, which occurred in the interior of the country (and in Formosa). The total of all the sick and wounded during the war thus amounted to 554,855 men. In addition to the above 77,803 sick and wounded of the Russian army fell into our hands and received our professional assistance. In these statistics are not included any mild cases of sickness, men who were able to remain with their units, or who after a few days were again fit for service.

2. *Strength of the medical services.*—An exceptionally large strength of army medical officers and men was naturally required to deal with the enormous numbers of sick and wounded of our own and the Russian armies, the total of which amounted to 632,688. Those detailed were: army medical officers, 4517; army apothecaries, 639; total, 5156. 33,597 non-commissioned officers and men were also available, so that altogether the army medical strength was 38,753. The Japanese Red Cross Association aided us both with *personnel* and material in a manner which cannot be too highly praised: a strength of 5470, consisting of doctors, apothecaries, and other assistants, were placed at our disposal

[1] Translated from the Deutsche Militärärztliche Zeitschrift by Major R. W. H. Jackson, R.A.M.C., B.A., M.D. Dub., D.P.H., special health officer, Cork District.

by that association. These persons worked at the seat of war as well as on the hospital ships and at the reserve hospitals in the interior of the country. All the Princesses of the Royal Family, as well as many ladies of our home and foreign aristocracies, joined the ladies' league of the so-called "Volunteer Ladies' Sick Nursing Association," of which Princess Kanin was president. A large proportion of these ladies had already become proficient in the care and nursing of the sick during peace times. They rendered us considerable help and are therefore worthy of our deepest gratitude. 239 civilian medical specialists also did excellent service. The greater number of these were professors from the university and medical schools who offered themselves as volunteers and were of great assistance to us. The *personnel* of the medical services, excluding the ladies' volunteer association, may therefore be grouped as follows: army, 38,753; Red Cross, 5470; volunteers (professionals), 239; foreign doctors, 2; and sister, 1; total, 44,465. Of these 5131 were medical men, so that there would be one medical man to every 123 of the sick and wounded. All slight cases of illness able to remain with their units are, of course, not counted.

3. *Surgical and medical material.*—There was a huge demand for surgical and medical material, including surgical instruments, dressings, and medicines, but the supply was everywhere so plentiful that no single instance of deficiency in this respect occurred. The Army Medical Stores of the War Office supplied by far the largest amount of this equipment. Medicines were chiefly administered in the form of pills and powders, which were also for the greater part dispensed at the depôt. The first field dressings, of which a very large number was required, as each soldier carried one, were made by the ladies of the Volunteer Sick Nursing Association, under the strictest medical supervision. Especially worthy of record is the fact that Her Majesty the Empress, the Crown Princesses, and all the Princesses of the Imperial Family devoted their energies to providing a supply of surgical dressings, and that their Royal Highnesses graciously directed that the dressings which they had prepared were intended not only for our own sick and wounded but for the use of the wounded of the Russian Army as well.

4. *Sick transport.*—Sick transport and evacuation of hospitals are to be understood as forming one of the most important, and at the same time one of the most difficult, branches of the military health service in the field. The transport of the sick was carried out by means of army ambulance wagons, railway carriages, and Chinese peasant carts which were hurried along by the side of the railway lines back to the field hospitals. Thence the sick were conveyed further to the rear by train. We used as far as practicable all the rivers and streams in Manchuria for transporting the sick by boat. In this manner the casualties were floated down towards the large general hospitals which were not far distant from the landing-stages both in Manchuria and Korea. Thence they reached their native place in special steamers. Besides these steamers 20 well-found hospital ships and many other sorts of vessels were available for transporting the sick. All the serious medical and surgical cases, as also infectious cases, were exclusively transported by means of the hospital ships. Having reached the collecting depôts which had been organised in several places at home (Japan), the sick were thence distributed to the respective reserve hospitals. 320,000 sick and wounded were thus dealt with in the hospitals at home.

5. *Results.*—Of the entire number of those removed from the theatre of war the results were: recovered, 63·23 per cent.; and died, 7·49 per cent. On the other hand, having regard to the wounded alone, the percentages are as follows: recovered, 71·58 per cent.; and died, 6·83 per cent. In peace times the following is the comparison of those received into hospital: recovered, 75·05 per cent.; and died, 1·18 per cent. (according to statistics of the year 1903). Therefore, in the last war we had a somewhat smaller number of recoveries and a far greater number of deaths.

6. *Field hygiene.*—The most difficult problem which falls to the lot of the medical officer is the preservation of the health of the army in the field. This preservation of health—that is, the maintenance of fitness for active service—is, of course, of the highest importance in war time.

7. *Ration, dieting, &c.*—The ration of the soldier consists of rice, meat, fish, with dried and fresh vegetables. Adequate provisions were made for a change of diet. On several occasions during the course of the week there was an issue of preserves as also of tobacco. If it could be possibly managed each soldier received twice a week saké (national rice wine). An additional issue of either rice or of biscuit was made on each occasion on which the work day of eight hours was exceeded. The dieting, &c., were very good and were plentifully supplied since the winter of the year 1904. It only happened on one occasion during the whole war that the troops, who were manœuvring in a lofty mountain range, could not receive their due allowance of rations on account of the difficulty of transport. This deficiency was made good by local purchase from the natives (inhabitants). However, this was only of short duration. The canteen system accompanied the troops from the beginning of the war. Buying of cooked food from the natives (excepting the raw materials) was strictly forbidden. From October, 1904, one-third of wheat was added to the ration of rice; this issue was made to guard against the recurrence of beri-beri, which had already spread so much amongst us; this measure, it would appear, was of great use. Each soldier carried a small canteen and an aluminium water-bottle, and it was possible for each man if he had the time and opportunity to obtain boiled rice and water on the spot in about ten minutes. History unfortunately teaches us that war demands many victims by devastating epidemics. In most wars the number of deaths from sickness far exceeds that of those who succumb to wounds by twice, thrice, aye, even up to ten times the number. By means of the strictest discipline and by the watchful care of the medical officers, this havoc may be prevented. We believe that our officers have accomplished much in this direction, and this will be understood best from what follows. The most important item of all is the individual attention to the rules of hygiene. Instruction in military hygiene and lessons in first aid in cases of accident are in peace times given in barracks by our regimental surgeons.

During the campaign our medical department published a small pamphlet, "Hygiene in War Time," of which several copies were provided for each company. Therein are to be found maxims for the preservation of the individual health, for cleanliness of clothes, for eating and drinking, rules of conduct while on the line of march and while billeted, further, concerning sickness, the results of marching, and also in regard to infectious diseases. The whole book was divided into 80 paragraphs and written in simple language. Thus, for example, it stated that the stomach should be kept warm and the body and clothing should be kept clean, "that one should not drink impure unboiled water," that every place where troops are billeted and near bivouacks latrines should be constructed, and that after each use of these earth or ashes should be used, &c. The regimental surgeons had to lecture and teach continuously. "The responsibility for the carrying out the rules, &c., rested entirely with the company officers." The success was excellent. Later a short preface was added containing rules for the prevention of the introduction of cholera or plague. To our great good fortune we remained quite free from these dire diseases during the entire war.

I must not leave unrecorded our creasote pills, of which each contained 0·1 of creasote, and of which two had to be consumed at each meal time. These pills were distributed to every branch of the service and the consumption of them was most strictly enforced. We believe that this prophylactic administration of creasote has had a marked influence in preserving the health of the army. According to the searching investigations of our bacteriologists in the Army Medical School, creasote possesses the property of limiting the course of putrefaction in the intestine to a certain extent and inhibits the development of pathogenic bacteria.

We had many difficulties to surmount as regards billeting and accommodation. Of those in the first line all could not find accommodation in the Chinese houses. Even when house accommodation could be obtained these houses were so terribly filthy that they had first of all to be carefully cleaned out and provided with the necessary arrangements of a dwelling. When no buildings could be obtained in summer time we lay in our portable tents, which have served us excellently in this way. In the winter time we lived in a kind of excavation in the earth which we heated after the Chinese fashion. Owing to the fact that the Manchurian climate is quite dry in winter and there is almost a complete absence of rain, our troops were very comfortably accommodated in these earth excavations (trenches) until the end of

February. The earth trenches served also as a protection against hostile fire, especially from large projectiles. During spring and summer time we were greatly tormented with the plague of flies. As is well known, flies convey all kinds of germs of infectious disease. They first repose on filth and fæces and immediately afterwards may alight on our food utensils, food, &c. It is therefore strictly necessary to keep them at a distance. We endeavoured to get rid of them by every conceivable means. The simplest fly traps were constructed. All the boxes and chests in which food and eating utensils were stored, as well as the entire cooking house, used to be covered in with a fine meshed netting; even the doors and windows were provided with a similar protection and fly papers composed of gum or treacle were spread about the rooms, &c. All refuse, such as horse dung, filth heaps, &c., on which the flies might deposit their eggs were burnt as often and as quickly as possible.

The midday meal of cooked rice which the soldiers used to carry was not damaged by the heat in summer time, but in winter it was necessary to protect the rice in a thickly covered aluminium canteen wrapped in wool and to carry this constantly beneath the great coat, otherwise the rice quickly became frozen and unfit for use. The thermometer in Manchuria was observed to fall as low as − 25° to 27° C.; so intense was the cold that (as a general rule) the water in the water bottles became frozen. In the severest winter seasons biscuits were issued with advantage, although they were neither carried nor consumed with much relish, firstly, because they took up so much room, and, secondly, because so much saliva was needed in eating them. The winter clothes consisted of the addition of woollen garments and furs which had been prepared beforehand for the purpose. Close to the site of disembarkation the drinking water contained a considerable amount of salt but the farther we marched into the open country of Manchuria the easier we found it to obtain good water, though often only in small quantities, yet always still a sufficiency. Filters were provided with most of the troops, yet were but little used. For the purpose of preventing pollution and waste a sentry was posted at each of the wells which yielded good water.

As already recorded, the drinking of unboiled water was strictly forbidden (before the war this precaution had been previously enjoined by repeated instruction). During the severest engagements, even in the middle of summer, these orders were strictly obeyed. The use of ordinary native Chinese pots, which are to be found in every peasant's house in that country, renders the boiling of water very easy, because it is possible to boil such a quantity in them at one time. Water comes to boiling point in these pots in about ten minutes. In suitable positions everywhere on the line of march tea stalls were instituted at which one could obtain refreshment; at some of these there were open (hot) baths where bathing was provided for everyone. Moveable transport apparatus for boiling water was only introduced at a later date. In addition we endeavoured to obtain drinking water free from bacteria by means of filtration and by clearing the water with chemical compounds. An apparatus for effecting this was issued to the troops later. During the severe winter frosts at suitable distances along the roads on the line of march were stationed the so-called refuges, the duty of the occupants of which was to protect the travellers during the night from falling asleep on the way and dying from cold.

8. *Infectious diseases.*—At nearly all seasons of the year small-pox, enteric fever, and dysentery prevailed amongst the inhabitants of Manchuria. As we usually endeavoured to obtain accommodation in the Chinese dwellings, we necessarily ran great risks of becoming infected. In order to obviate this danger as far as possible, it was necessary for the regimental medical officers to hurry forwards in front and to take suitable steps to discover, especially, those persons suffering from infectious disease, as well as the infected houses. Nearly every house and every family would be inspected and any infected quarters would be excluded from occupation by the soldiers. On the other hand, the greatest care would be bestowed by us on the sick who had been discovered. In the months of July and August, during the second year, while in summer quarters during the rainy season when only a few important battles took place and the *ennui* became oppressive, there then occurred a few cases of diarrhœa, slight attacks of dysentery, and catarrh of the large intestine. A peculiar feverish malady which could not be considered typhoid fever was frequently noticed, which was characterised by a sort of gastric fever with catarrh of the larger bowel and a secretion of slime, the disease lasting from four to five days. As we had time and opportunity we carried out the strictest disinfection amongst the troops, perhaps a great deal more strictly than takes place at home or in barracks. The portable steam sterilising apparatus was used very diligently for the disinfection of clothes and woollen coverings, and apparently with great success. Vaccination was practised but none of the blood serum injections against typhoid fever, dysentery, cholera, plague, &c., were ever used, because the injection is not always free from the risk of causing transitory disturbances of health as sequelæ, and it was impossible for us to wait for the decline of the reaction fever, owing to the rapid enrolment of the army. On each occasion after the disembarkation of sick, the hospital and sick transports were washed and disinfected in the strictest manner. Each hospital steamship was provided with a steam sterilising apparatus.

9. *Statistics.*—The relation between the number of deaths from wounds and those from sickness was in all the great wars of Europe until about the middle of the nineteenth century on an average about 1 in 6—that is to say, the mortality from sickness was six times as great as that from wounds. With the progress and improvement in the medical services in war time this relation has become much more favourable as regards the sick, and in the most recent European wars the numbers are 1 to 1·18. In the Franco-German war of 1870–71 the German average was 1 to 0·56. If we regard the relation of the numbers in our last war we find the mortality of wounded in comparison with the sick is 1 to 0·37. The deaths from sickness, therefore, form only about a third of those from wounds. In the Japano-Chinese war of 1894–95 the relative numbers of deaths from wounds to deaths from sickness were as 1 to 12. During the disorders in North China the relative numbers were 1 to 197. The territory involved in war during the Japano-Chinese and Russo-Japanese wars was about the same. Nevertheless, we have to record during the last war only one-sixth of the number of sick and only $\frac{1}{25}$nd of the death-rate of sick which was observed in the former war. The number of the sick in Manchuria was even smaller than that in peace time. Thus we had on an average in the year 1903 10·21 per cent. (of the entire strength) of fresh sick for each month while in Manchuria only 8·69 per cent. Only 4 per cent. of the entire active force suffered from infectious diseases. Beri-beri was also more evident in this case and formed a fourth of the total sick received into hospital. Only 0·35 per cent. of the combatants altogether suffered from frost-bite, which forms one-tenth of the number of sick from the same cause during the Japano-Chinese war of ten years ago. The percentage of wounded, including those who died from wounds, in the more recent great European wars (from the middle of the eighteenth century to the present time), calculated from the entire total strengths, reached 13·99 per cent. In this respect we had 14·58 per cent. during the last war. The percentage of wounded and killed in our last war is therefore greater than the average number in the recent European wars. The insignificant number of deaths of sick in comparison to that of wounded, 0·37 to 1, might perhaps be accounted for partly by the large number who suffered from wounds during the last war. The chief cause, however, of these results was the better equipment and more perfect arrangements provided in the department of Military Medical Service. Up to the present time the Army Medical Service of no other country has shown such brilliant results as these.

For this reason it may be permitted us to state that while on the one hand nothing similar to the Japano-Russian war in magnitude and extent has been recorded in the recent history of the world, on the other hand the success of our well-devised medical arrangements has been so satisfactory and brilliant that it remains hitherto alone and unapproached. We are deeply sensible of our great indebtedness to that nation among civilised races which devotes itself with zeal and energy to maintain its army always fit for active service and to lessen as far as possible the hardships of the wounded or sick warrior, the nation which has shown us the direction in which we should advance so as firmly to establish our Empire. May it be granted to this nation that with the progressive development of medical science and with correspondingly better devised sanitary arrangements she may help to moderate and lessen the horrors and cruelties of war to the utmost possible extent.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Jan. 3rd, 1829.

SECALE CORNUTUM.

To the Editor of THE LANCET.

SIR,—The following case, the treatment of which, though some may be induced to censure, I consider may be useful to the profession at large, I submit to your disposal.

A lady, in the sixth month of pregnancy, after some premonitory symptoms, which had then vanished, was suddenly seized with labour, and as her medical attendant resided at some distance, a neighbouring practitioner was called in. The fœtus was quickly born; but, unluckily, in attempting the extraction of the placenta, which adhered very firmly, the umbilical cord was broken near, if not at its placental extremity. After some time the pains left, and the Doctor also; one, two, three, and even five days passed, yet still the placenta was retained, and was evidently a source of considerable irritation. It was absolutely necessary that something should be done; and having heard of the extraordinary effects of the secale cornutum on the uterus it was determined to give it a trial. Accordingly four scruples were boiled, in four ounces of water, down to two, and half an ounce given every half hour, until some effect was produced. Two doses occasioned a very slight pain only; but, after the third, the uterus acted most powerfully, expelling a quantity of coagula, together with the after-birth. The patient remained in a very weak state, but soon recovered, and, in most expressive language, extolled this invaluable medicine. The pains, she observed, were of a severer kind, and gave considerably more torture than any experienced during previous confinements. This, probably, might be owing to the revival of the action of the uterus so soon after delivery, which always produces some soreness of that organ, and also to the presence of a substance, which though formerly natural, had become foreign to the cavity.

It has been said that the ergot becomes inert by keeping; that used in this instance was above twelve months old, and it certainly possessed all its virtues. That it varies in quality, seems much more plausible.

Dec. 6, 1828. M.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8707 births and 5780 deaths were registered during the week ending Dec. 22nd, 1906. The annual rate of mortality in these towns, which had been equal to 15·8 and 17·4 per 1000 in the two preceding weeks, further rose during the week to 19·1. During the first twelve weeks of the past quarter the death-rate in these towns averaged 15·9 per 1000; the rate during the same period in London was 15·6. The lowest death-rates in the 76 towns during the week under notice were 5·7 in King's Norton, 6·7 in Northampton, 7·8 in Hornsey, and 9·6 in Tynemouth; the rates in the other towns ranged upwards to 25·9 in Oldham, 26·0 in Newport, 28·3 in Smethwick, and 30·5 in Rochdale. The 5780 deaths in the 76 towns showed a further increase of 509 upon the low numbers returned in recent weeks, and included 425 which were referred to the principal epidemic diseases, against 399 and 411 in the two preceding weeks; of these, 166 resulted from measles, 76 from whooping-cough, 62 from diphtheria, 46 from diarrhœa, 42 from scarlet fever, 33 from "fever" (principally enteric), and not one from small-pox. The deaths from these epidemic diseases were equal to an annual rate of 1·4 per 1000 in the 76 towns; the rate did not exceed 1·1 in London. No death from any of these diseases was returned last week in Northampton, York, Blackburn, Merthyr Tydfil, or in seven other of the 76 towns; the annual death-rates therefrom, however, ranged upwards to 5·3 in Warrington, 6·0 in Wigan, 7·0 in South Shields, and 9·4 in Rotherham. The fatal cases of measles, which had been 114, 121, and 128 in the three preceding weeks, further rose during the week to 166; the highest annual rates from this disease in the 76 towns were 3·3 in Oldham, 3·8 in Warrington, 4·3 in Rotherham, and 4·8 in Wigan. The 76 deaths from whooping-cough also showed a further considerable increase upon recent weekly numbers; they were proportionally most numerous in Preston, Middlesbrough, South Shields, and Rotherham. The deaths referred to diphtheria, on the other hand, showed a further decline; this disease caused, however, annual rates equal to 1·5 both in Grimsby and Warrington, 1·6 in Smethwick, and 4·6 in Reading. The fatal cases of diarrhœa also showed a further decline. Scarlet fever caused the highest death-rates in Handsworth and Rotherham and "fever" the highest rate in Wigan. No case of small-pox has been under treatment in the Metropolitan Asylums Hospitals since the end of June last. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital, which had been 4063 and 3988 in the two preceding weeks, further declined to 3807 at the end of the week under notice; 334 new cases were admitted to these hospitals during the week, against 419 and 359 in the two previous weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs, which had been 312, 345, and 408 in the three preceding weeks, further rose to 543 in the week under notice, and exceeded the corrected average in the corresponding week of the last four years, 1902–05, by 132; 82 deaths were also referred to influenza. The causes of 51, or 0·9 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in London, Manchester and Salford, Leeds, West Ham, Newcastle-on-Tyne, and in 43 other of the 76 towns; the proportion of uncertified deaths, however, again showed a considerable proportional excess in Liverpool, Birmingham, Warrington, St. Helen's, and South Shields.

In 76 of the largest English towns 5721 births and 5988 deaths were registered during the week ending Dec. 29th. The normal rate of mortality in these towns, which had been equal to 15·8, 17·4, and 19·1 per 1000 in the three preceding weeks, further rose last week to 19·7. During the 13 weeks of the past quarter the death-rate in these towns averaged 16·2 per 1000; the rate during the same period in London was 16·0. The lowest death-rates in the 76 towns during the week under notice were 9·8 in Handsworth, 10·6 in Devonport, 11·3 in Grimsby, and 11·6 in Willesden; the rates in the other towns ranged upwards to 28·8 in Newport, 29·0 in Rotherham, 29·9 in Merthyr Tydfil, and 31·7 in Rochdale. The 5988 deaths in the 76 towns showed a further increase of 208 upon the numbers returned in recent weeks and included 430 which were referred to the principal epidemic diseases, against 411 and 425 in the two preceding weeks; of these, 136 resulted from measles, 89 from whooping-cough, 84 from diphtheria, 53 from diarrhœa, 40 from scarlet fever, 27 from "fever" (principally enteric), and one from small-pox. The deaths from these epidemic diseases were equal to an annual rate of 1·4 per 1000 in the 76 towns, corresponding with the rate in each of the two preceding weeks; the rate in London from the same diseases was 1·3. No death from any of these diseases was returned last week in Burnley, Stockport, Northampton, York, or in ten other of the 76 towns; the annual death rates therefrom, however, ranged upwards to 3·5 in Merthyr Tydfil, 3·6 in Wigan, 4·0 in Norwich, 4·1 in Oldham, and 6·0 in Hull. The fatal cases of measles showed a decline from the high number in the previous week, but showed a marked excess in Rochdale, Oldham, Wigan, and Hull. The deaths from whooping-cough were proportionally most numerous in East Ham, Norwich, and Willesden. The 84 fatal cases of diphtheria again showed an increase, and the fatality of this disease was most marked in Wolverhampton, Blackburn, Rhondda, and Walthamstow. The deaths attributed to diarrhœa showed a further decline from recent weekly numbers, but were in marked excess in Merthyr Tydfil. The death-rates both from scarlet fever and "fever" were generally below the average; three deaths from "fever" were, however, recorded in Rhondda. The fatal case of small-pox occurred in Hull. No case of small-pox has been under treatment in the Metropolitan Asylums Hospitals since the end of June last. The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and in the London Fever Hospital, which had been 4063, 3988, and 3807 in the three preceding weeks, rose again to 3846 at the end of the week under notice;

237 new cases were admitted to these hospitals during the week, against 419, 359, and 334 in the three previous weeks. The deaths in London referred to pneumonia and other diseases of the respiratory organs which had steadily increased in the four preceding weeks from 312 to 543, further rose to 561 in the week under notice, and exceeded the corrected average in the corresponding week of the last four years by 129; 55 deaths were referred to influenza against 82 in the previous week. The causes of 88, or 1·5 per cent., of the deaths registered during the week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in Leeds, Bristol, West Ham, Newcastle-on-Tyne, and in 43 other of the 76 towns; the proportion of uncertified deaths, however, again showed a considerable proportional excess in Liverpool, Birmingham, Sunderland, Bootle, St. Helen's, Tynemouth, and King's Norton.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been equal to 18·4 and 18·1 per 1000 in the two preceding weeks, rose again to 19·9 in the week ending Dec. 22nd, and exceeded by 0·8 the mean rate during the same week in the 76 English towns. The rates in the eight Scotch towns ranged from 12·0 and 17·9 in Leith and Edinburgh to 21·1 in Perth and 25·3 in Dundee. The 681 deaths in the eight towns showed an increase of 61 upon the number in the previous week and included 69 which were referred to the principal epidemic diseases, against 63 and 55 in the two previous weeks. These 69 deaths were equal to an annual rate of 2·0 per 1000, which exceeded by 0·6 the rate from the same diseases in the 76 English towns; they included 19 which were referred to whooping-cough, 21 to diarrhœa, 11 to diphtheria, seven to "fever," six to scarlet fever, five to measles, and not one to small-pox. The 19 fatal cases of whooping-cough showed an increase on recent weekly numbers, and included 14 in Glasgow and two in Aberdeen. The 21 deaths referred to diarrhœa also showed an increase; nine occurred in Glasgow, four in Dundee, three in Edinburgh, and two in Aberdeen. Of the 11 deaths from diphtheria, five were returned in Glasgow and three in Dundee. All the seven deaths referred to "fever" were returned in Glasgow, and included five certified as cerebro-spinal meningitis. The fatal cases of scarlet fever included two both in Glasgow and in Dundee; and three of the five deaths from measles occurred in Aberdeen. The deaths in the eight towns referred to diseases of the respiratory organs, including pneumonia, which had been 126 and 133 in the two preceding weeks, declined again during the week under notice to 119, and were 11 below the number returned in the corresponding week of last year. The causes of 30, or 4·4 per cent., of the deaths registered during the week were not certified or not stated; the mean proportion of uncertified deaths in the 76 English towns during the week did not exceed 0·9 per cent.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had been equal to 23·8, 22 4, and 22·3 per 1000 in the three preceding weeks, rose again to 28·8 in the week ending Dec. 22nd. During the first 12 weeks of the past quarter the death-rate in the city averaged 24·3 per 1000, the mean rate during the same period being only 15·6 in London and 16·1 in Edinburgh. The 209 deaths of Dublin residents during the week under notice showed an increase of 47 upon the number returned in the previous weeks; they included nine which were referred to the principal epidemic diseases, against nine and 13 in the two preceding weeks. These nine deaths were equal to an annual rate of 1·2 per 1000, against 1·1 and 0·9 respectively from the same diseases in London and Edinburgh. The nine deaths from these epidemic diseases in Dublin during the week included two each from measles, diphtheria, whooping-cough, and diarrhœa, one from "fever," and not one either from scarlet fever or small-pox. The fatal cases of diphtheria, whooping-cough, and diarrhœa showed a decline from the numbers in the previous week. Eight inquest cases and five deaths from violence were registered; and 87, or 41·6 per cent., of the deaths occurred in public institutions. The causes of eight, or 3·8 per cent., of the deaths registered in the city during the week were not certified; the percentage of uncertified causes of death during the same week did not exceed 0·8 in Edinburgh, and in London all the causes of death were duly certified.

The annual death-rate in Dublin, which had been equal to 22·3 and 28·8 per 1000 in the two preceding weeks, declined to 18·4 in the week ending Dec. 29th. During the 13 weeks of last quarter the death-rate in the city averaged 23·9 per 1000, the mean rate during the same period in London being only 16·0. The 129 deaths of Dublin residents during the week under notice were fewer by 80 than the high number in the previous week; these included five which were referred to the principal epidemic diseases, against 13 and nine in the two preceding weeks. These five deaths were equal to an annual rate of 0·7 per 1000, against 1·3 in London. The five deaths from these epidemic diseases in Dublin last week included two from whooping-cough two from diarrhœa, one from diphtheria, and not one, either from measles, scarlet fever, "fever," or small-pox. The fatal cases of whooping-cough and diarrhœa corresponded with the numbers in the previous week, while the death from diphtheria compared with five and two in the two preceding weeks. Four inquest cases, but no deaths from violence, were registered during the week; and 32, or 24·8 per cent., of the deaths occurred in public institutions. The causes of but one, or 0·8 per cent., of the deaths registered in the city during the week were not certified, against 7·4 and 3·8 per cent. in the two preceding weeks.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

Fleet Surgeon W. G. K. Barnes has been appointed to the Royal Marine Depôt at Deal.

ROYAL ARMY MEDICAL CORPS.

Captains W. A. Ward, P. J. Bodington, and G. G. Delap, D.S.O., from the Royal Army Medical College, have been appointed to the London district for duty. Lieutenant G. De la Cour has been appointed for duty in London.

The undermentioned Lieutenants are confirmed in that rank: Percy Farrant, Augustus S. Williams, and Timothy W. O. Sexton.

ROYAL ARMY MEDICAL CORPS IN INDIA.

The following officers are appointed to the command of station hospitals noted against their names:—Major G. A. T. Bray, Shwebo; Major A. J. Luther, Bhamo; Lieutenant-Colonel S. C. B. Robinson, Ahmednagar; and Lieutenant-Colonel S. Westcott, Mhow. Lieutenant-Colonel H. P. G. Elkington is posted to Jubbulpore in charge of the Brigade Laboratory. Major T. H. J. C. Goodwin is posted to Quetta. Captain H. B. Kelly has arrived at Bombay per s.s. *Oriental*.

Extension of leave has been granted to the following officers:—Lieutenant R. B. Hole, from Nov. 26th, 1906, to May 25th, 1907. Lieutenant W. Wiley, from Nov. 26th, 1906, to date of embarkation for India. Lieutenant R. J. Cahill, from Nov. 25th, 1906, to date of embarkation for India. Captain R. B. Ainsworth has been granted six months' leave from the date he reports his arrival in England. Lieutenant-Colonel S. G. Allen has been granted general leave on private affairs from April 1st to Sept. 30th, 1907.

Lieutenant T. J. Wright is appointed a specialist in the prevention of diseases from Sept. 11th, 1906, and transferred from Colaba to Belgaum. Colonel O. Todd, principal medical officer 6th (Poona) Division, is transferred in the same capacity to the Bangalore and Southern Brigades. Lieutenant-Colonel J. R. Forrest is transferred from the Western to the Eastern Command. Captain R. B. Ainsworth is detailed for duty on the *Plassy*, which sailed from Bombay on Jan. 4th.

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 7th Lancashire (The Manchester Artillery): Surgeon-Lieutenant-Colonel R. A. S. Daly is granted the honorary rank of Surgeon-Colonel (dated Nov. 27th, 1906). Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel R. A. S. Daly resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated Nov. 28th, 1906).

Royal Engineers (Volunteers): 1st Lancashire: Surgeon-Captain H. Halton resigns his commission (dated Nov. 15th, 1906).

Rifle: The Queen's Rifle Volunteer Brigade the Royal Scots (Lothian Regiment): James William Keay to be Surgeon-Lieutenant (dated Dec. 1st, 1906). 1st Volunteer Battalion the Queen's (Royal West Surrey Regiment): Surgeon-Captain J. Wayte resigns his commission (dated Nov. 24th, 1906). 2nd Volunteer Battalion the Lincolnshire Regiment: Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel (Surgeon-Lieutenant-Colonel, Army Medical Reserve of Officers) G. F. England resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated Nov. 24th, 1906). 3rd Volunteer Battalion the Bedfordshire Regiment: Surgeon-Lieutenant T. D. H. Holmes resigns his commission (dated Nov. 17th, 1906). 2nd Volunteer Battalion the Lancashire Fusiliers: Surgeon-Major and Honorary Surgeon-Lieutenant-Colonel W. Pooley resigns his commission, with permission to retain his rank and to wear the prescribed uniform (dated Nov. 14th, 1906). 1st Roxburgh and Selkirk (The Border) Volunteer Rifle Corps: Surgeon-Lieutenant R. W. Meikle to be Surgeon-Captain (dated July 7th, 1906). 3rd (Dumfries) Volunteer Battalion the King's Own Scottish Borderers: Surgeon-Lieutenant-Colonel J. Maclachlan is granted the honorary rank of Surgeon-Colonel (dated Nov. 1st, 1906). Surgeon-Lieutenant-Colonel and Honorary Surgeon-Colonel J. Maclachlan is retired, under the conditions of paragraph 103, Volunteer Regulations, with permission to retain his rank and to wear the prescribed uniform (dated Nov. 2nd, 1906). 4th Volunteer Battalion, The Cameronians (Scottish Rifles): Surgeon Lieutenant N. Macnair to be Surgeon-Captain (dated Nov. 6th, 1906). 2nd Volunteer Battalion, The Welsh Regiment: Surgeon-Major D. Hepburn to be Surgeon-Lieutenant-Colonel (dated Oct. 14th, 1906). 2nd Volunteer Battalion, The Sherwood Foresters (Nottinghamshire and Derbyshire Regiment): Arthur Wilson Shea (late Captain) to be Surgeon-Lieutenant (dated Nov. 9th, 1906). The Prince of Wales's Own, 12th Middlesex (Civil Service) Volunteer Rifle Corps: Surgeon-Captain E. M. Callender to be Surgeon-Major (dated Nov. 23rd, 1906). 21st Middlesex (The Finsbury) Volunteer Rifle Corps: Surgeon-Lieutenant C. A. C. Smelt to be Surgeon-Captain (dated Nov. 27th, 1906). 2nd Volunteer Battalion, The York and Lancaster Regiment: Harold Forster Horne to be Surgeon-Lieutenant (dated Nov 6th, 1906). 1st (Renfrewshire) Volunteer Battalion, Princess Louise's (Argyll and Sutherland Highlanders): Supernumerary Surgeon-Lieutenant-Colonel T. Philip (Brigade Surgeon-Lieutenant-Colonel, Senior Medical Officer, Clyde Volunteer Infantry Brigade) is granted the honorary rank of Surgeon-Colonel (dated Nov. 30th, 1906).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

London District: London Companies: Lieutenant-Colonel V. Matthews is granted the honorary rank of Colonel (dated Nov. 27th, 1906). Welsh Bearer Company: Lieutenant E. J. R. Evatt to be Captain (dated Sept. 7th, 1906).

THE REPORT OF THE SURGEON-GENERAL OF THE UNITED STATES NAVY.

The report of the Surgeon-General of the United States Navy for the year ending October, 1906, states that on Jan. 1st, 1906, the medical corps of the navy consisted of 15 medical directors, 15 medical inspectors, 87 surgeons, 50 post assistant surgeons, 75 assistant surgeons, and 16 acting assistant surgeons appointed for temporary service. The number of officers and men under their care was 43,000. The number of qualified candidates for commission as assistant surgeons was smaller than the demand. The health of the navy and marine corps for the calendar year 1905 was good, the ratio of admissions to the sick list per 1000 of strength being less than for the year 1904 and for the ten preceding years.

PRESENTATIONS TO MEDICAL PRACTITIONERS.—On Dec. 28th, 1906, at the King's Head Hotel, Cirencester, Earl Bathurst, C.M.G., on behalf of 350 subscribers, presented Mr. Oliver Humphrey Fowler, M.R.C.S. Eng., with an illuminated address and a massive silver-gilt double-handled cup of rich workmanship of the period of George II., the date being 1752, as a mark of respect and esteem on the occasion of Mr. Fowler's retirement after 40 years' work in Cirencester and the district.—Mr. John Henry Deane, L.R.C.P., L.R.C.S. Edin., of Trewartha Park, Weston-super-Mare, was on Dec. 21st presented with a solid silver tray, salver, and kettle as a mark of respect and esteem on the occasion of his leaving the town.

Correspondence.

"Audi alteram partem."

ASCARIS LUMBRICOIDES AND PERNICIOUS ANÆMIA: GREGARINOSIS IN MAN.

To the Editors of THE LANCET.

SIRS,—Although eminent authorities, Leuckart, Max Braun, Thomson, and others, deny the existence of gregarines in man, I have the temerity to make a positive statement. From an examination of over 1600 specimens of fæces during the last 15 years I have come to the conclusion that gregarines are not infrequently present in the fæces in many forms of intestinal disorder. They are, however, not numerous, and are, as a rule, only encountered after a somewhat prolonged search. But they occur in numbers when associated with ascaris lumbricoides—that is to say, when the ascaris is itself infected with gregarines.

It was in five cases of pernicious anæmia diagnosed as such by specialists, and in three of these the blood had been examined by experts, that this association existed. In one case only had I the good fortune to get the expelled ascaris and was able to find this sporozoon in the worm. The gregarines were quite typical. In the fæces the so-called conjugation form is chiefly met with, but the size varies with the host that harbours them. I here wish to state I am aware that another sporozoon (coccidium) belonging to the same class is sometimes found in the intestines of man, oftener than is supposed; but I do not refer to this.

The etiology of pernicious anæmia may be roughly considered under two heads: (1) known; and (2) unknown. Of the former, parasitic infection is one of the recognised causes. The ankylostoma duodenale and bothriocephalus latus are said to play the important rôle, and I venture to add to this the infected ascaris lumbricoides. While freely admitting the powers of the ankylostoma duodenale in this respect, I take the present opportunity to question that the healthy bothriocephalus latus is capable of producing pernicious anæmia. I feel this to be a bold statement, but from personal observation and from a careful and prolonged consideration both into the life-history and peculiarities of this cestode, as well as a patient and thoughtful perusal of the literature which is by no means scanty, I feel compelled to cast a doubt on the powers of the healthy bothriocephalus latus in producing pernicious anæmia. I hope, however, in the near future to be able to show that there is much evidence to justify what I have said.

I am, Sirs, yours faithfully,

A. F. BILDERBECK GOMESS, L.R.C.P. Lond., M.R.C.S. Eng., F.C.S.,
Late Assistant Pathologist, St. George's Hospital.

Dec. 29th, 1906.

THE CURE OF CHRONIC SUPPURATION OF THE MIDDLE EAR, WITHOUT REMOVAL OF THE DRUM OR OSSICLES OR LOSS OF HEARING.

To the Editors of THE LANCET.

SIRS,—In your issue of Dec. 15th, under the heading of "Medical Societies," there is the record of a meeting of the British Laryngological, Rhinological, and Otological Association (Nov. 9th last), when there were exhibited for the first time a large number of patients who illustrated "the Cure of Chronic Suppuration of the Middle Ear without Removal of the Drum or Ossicles or the Loss of Hearing"; they had, until recently, been suffering from deafness, discharging ears, perforated drum membranes, polypus in the ear, and disease of the mastoid antrum, all of which complications were the outcome of chronic suppuration of the middle ear for periods varying from three months to 18 years. These patients were shown to have been cured of this disease and of their deafness, and the perforations of their drum membranes could be seen to have healed; they were restored to

safety and to good hearing by an operation designed by Mr. Charles J. Heath, F.R.C.S.

When first the description and results of this operation were published[1] they attracted little attention, for it was not, then, generally realised that such recoveries were possible; therefore great interest was expressed at the meeting above referred to in the evidence there forthcoming. The advantages of this procedure are already appreciated by many London and provincial aural surgeons, for it is not so severe as the radical operation; the drum membrane and bones are not removed, recovery is more rapid, and its aim is the production of a perfect ear and not a defective one, which is the only possible result of the radical operation hitherto performed for the cure of chronic suppuration in the ear.

As surgeon to an ear and throat hospital in London, and therefore being familiar with the needs of those suffering from aural discharge, and also with the fact that the records of the meetings of societies are not often read by the busy medical man, I feel it a duty to write this letter in the hope of bringing to the knowledge of the medical profession generally the fact that this common disease is now usually curable, if dealt with by this method, before extensive damage has occurred to the drum membrane, but that if delayed the radical operation, or that, in addition to some more grave proceeding, may ultimately be needed, which measure, at its best, must leave a mutilated and defective ear. This great advance is British, and it should be a British duty to recognise the merits of our own workers and thinkers, and not to imagine that progress can only be made abroad.

I am, Sirs, yours faithfully,

Wimpole-street, W., Dec. 29th, 1906. FREDERICK SPICER.

THE INDIGESTIBILITY OF PLUMMER'S PILLS.

To the Editors of THE LANCET.

SIRS,—It is now many years since I wrote to THE LANCET, in fact, soon after the change was made from treacle to castor oil as a binding material in forming these pills, stating that when made with castor oil they very frequently, if not in a large proportion of cases, passed unchanged through the bowels. This does not occur when they are made up with treacle, as in the old London and Edinburgh pharmacopœias' formulæ. Why the change was made I never could understand unless it were that a pill mass is more difficult to make up with treacle as it is more friable; but if the pill mass is kept warm while being rolled it can quite well be made into pills, and personally, as an old apprentice to a surgeon and apothecary, a rare survival nowadays, I have made them thus very many times, and extremely active they were. If pharmaceutists will go back to treacle as a medium in making Plummer's pills there will be no more complaints of inefficiency in their action.—I am, Sirs, yours faithfully,

North Shields. ROBERT SEPT. PEART.

SECRETIN AND PANCREATIC EXTRACT IN RELATION TO DIABETES.

To the Editors of THE LANCET.

SIRS,—In the cases of diabetes recorded by Moore, Ellis, and Abram the treatment by means of secretin was combined with a strict attention to diet. It has since been asserted that there is no evidence to show that strict dieting alone would not have accounted for the disappearance of sugar from the urine. More severe cases, where dieting was insufficient to banish sugar from the urine, were treated with secretin by Bainbridge and the results obtained led to the conclusion that there is no evidence to prove that secretin given by the mouth can abolish or influence the glycosuria of severe diabetes. In view of these observations the following results may be of interest.

A patient, aged about 25 years, had been treated by various recognised drugs for severe diabetes. Ordinary treatment was discontinued and secretin was given by the mouth, the extract from about three feet of intestine being prepared twice a week for the purpose. No restriction was placed upon the patient's diet. A short time after the commencement of treatment the total daily output of sugar was 280 grammes. At this time there was added to the secretin administered by the mouth an extract of fresh pancreas, the pancreas of two pigs being used each week. A fall in the amount of sugar was observed. Some time later, through the misunderstanding of an order, the pancreatic extract was discontinued though the secretin was still taken as before. The amount of sugar at once increased. It was diminished when pancreatic extract was again added and the diminution became still greater when the amount of pancreatic extract given was doubled. The results are at present insufficient as a basis for any conclusion, but they are suggestive and worthy of further investigation.

I am, Sirs, yours faithfully,

Bristol, Dec. 18th, 1906. A. F. STANLEY KENT.

[1] THE LANCET, August 11th, 1906, p. 353.

SURGICAL TUBERCULOSIS.

To the Editors of THE LANCET.

SIRS,—During the last few years considerable impetus has been given to the movement for providing facilities for the open-air treatment of pulmonary tuberculosis and one still finds in the lay press appeals for funds to build or endow sanatoriums for this excellent object. But is it not time to consider the claims of those sufferers whose tuberculosis is not of the lungs but of joints, bones, glands, &c., and whose ailments are generally regarded as surgical rather than medical? Such cases as these are usually treated in the surgical wards of the general hospitals of our big cities. Many patients of this class are under the care of the metropolitan hospitals and of these a small number are afterwards drafted to convalescent homes, where open-air treatment, if it exists, is only exceptional, and varies in the thoroughness of its administration with the personal views of the nurse-in-charge. Moreover, many of these convalescent homes do not profess to make any adequate provision for the nursing of surgical cases and often refuse patients for whom the simplest dressing is necessary; indeed, there are some convalescent homes which appear to regard robust health as the qualification for admission.

The consequence of this is that a proportion, possibly as large as 25 per cent., of the surgical beds of our metropolitan hospitals are occupied by cases of tuberculosis which could with advantage be treated in the country, while their place could be filled again and again by an ever-increasing crowd of applicants suffering from a variety of ailments for the cure of which surgical measures are nowadays considered necessary. Should the various conditions requiring surgical treatment continue to increase at the present rate it is evident that the strain upon the accommodation on the surgical side of our metropolitan hospitals will soon reach the breaking-point, and there are few hospitals whose managers would view with equanimity the prospect of expansion on their present sites.

In the more rational treatment of cases of surgical tuberculosis I believe we have a means of expansion of our metropolitan hospitals which should commend itself to hospital managers on the grounds of economy alone. Let each hospital or group of hospitals erect on a site readily accessible from London a small affiliated institution for the open-air treatment of cases of surgical tuberculosis. The provision of an administrative block, with an operating room, offices, &c., and huts for the patients, would not prove so costly as the purchase of sites in crowded business thoroughfares and the erection of stately structures of bricks and mortar, while the arrangement suggested would allow of almost indefinite expansion. The increased facilities of modern locomotion would overcome the difficulties of transporting the patients and would also render possible frequent visits of the staff and students of the parent institution.

May I, through the medium of your columns, bring this bare outline of a scheme to the notice of our hospital managers and so indirectly to that of the charitable public?

I am, Sirs, yours faithfully,

Harley-street, W., Dec. 27th, 1906. V. WARREN LOW.

MEAT DIET AND THE TEETH.

To the Editors of THE LANCET.

SIRS,—Dr. D. Chalmers Watson's paper to the Pathological Society of London covered so much ground and dealt with so many organs and tissues of the body that one feels a fuller exposition of his investigation with reference to the teeth might have been given but for the limits of time. So far as it goes, however, his conclusions would appear to be

somewhat antagonistic to a much too generally accepted theory. It has usually been supposed that a deficiency of lime salts in the drinking water or in the food consumed, as, for example, in white bread, makes the teeth susceptible to dental caries. This I have maintained is, in an ordinary way, a quite untenable theory. Dr. Chalmers Watson's investigation seems to show that a meat diet peculiarly deficient in lime salts has little or no deleterious effect upon the teeth. Before claiming any support, however, from Dr. Chalmers Watson's investigation it would be very desirable to have from him a more extended statement of his observations and conclusions, for it would throw light on one of the most important and hotly debated questions in dental surgery and further information will, I am sure, be eagerly looked for. I am, Sirs, yours faithfully,

Wimpole-street, W., Dec. 31st, 1906. J. SIM WALLACE.

ICE ENEMATA.

To the Editors of THE LANCET.

SIRS,—In THE LANCET of Dec. 22nd, 1906, p. 1740, you have an annotation on a paper in the *Journal of the Royal Army Medical Corps* by Captain M. F. Foulds, R.A.M.C., in which he draws attention to the good results following the use of ice enemata in cases of sunstroke. Captain Foulds suggests that this treatment might be beneficial in cases of pyrexia from other causes and for this I can vouch from personal experience. Some years ago I found that large cold enemata were most efficacious in cases of malarial pyrexia. Had I been able to obtain ice probably the benefit would have been even greater. I know nothing which so quickly reduces the temperature as a large cold-water enema, and the resulting free action of the bowels which often follows adds to the comfort and relief obtained. I am, Sirs, yours faithfully,

Harley-street, W., Dec. 28th, 1906. R. U. MOFFAT.

SOME PATHOLOGICAL CONSIDERATIONS OF EXTRA-UTERINE PREGNANCY.

To the Editors of THE LANCET.

SIRS,—In case any of your readers found difficulty in distinguishing the relationships of the parts in Fig. 4 of my paper on extra-uterine pregnancy in your issue of Dec. 29th, I thought it wise to write and point out that the twin gestation may be more readily seen if the journal be held "upside down." The description in the text will be found to correspond to the view thus obtained, and the parts become much more distinct if a magnifying glass be used.

I am, Sirs, yours faithfully,

Glasgow, Dec. 29th, 1906. S. CAMERON.

THE INTRAMEATAL OPERATION.

To the Editors of THE LANCET.

SIRS,—It is gratifying to find from a perusal of THE LANCET of Dec. 22nd that Mr. Macleod Yearsley is now in favour of the intrameatal operation in certain cases of middle ear disease. So much has been written and spoken by otologists against intrameatal operations that it has often been difficult to obtain a hearing for the advocacy of such measures, which my experience (500 otectomies) shows to be so successful in disinfecting the aural cavities. Mr. C. A. Ballance has said the intrameatal operation is dangerous and unsatisfactory. In none of my cases has a dangerous symptom arisen that could fairly be attributed to the operation. I have pointed out over and over again that it is most conservative of the hearing and Mr. Yearsley now admits as much.

Mr. Yearsley himself three years ago published an article in the *Medical Times* advocating the radical mastoid operation for 13 conditions of middle ear disease, and had then nothing to say in favour of the intrameatal operation. As the practical importance of the subject seemed to me so great I replied to his article and my criticism was published, in which I pointed out that many of the conditions referred to would be better dealt with by an otectomy. This term is, I think, preferable to that of ossiculectomy, for the removal of one or more ossicles is not the most important part of the operation. When, two years ago, I read a paper in Birmingham describing my method of removing the outer attic wall, some otologists present questioned its possibility. I now see Mr. Yearsley is doing the same. It is, however, in my opinion not generally necessary, though a useful measure in some cases. I am glad that the methods I have so long advocated, in spite of a complete absence of encouragement from other otologists, should now receive distinguished endorsement, for it is by such methods that permanent relief can most easily be given to a multitude of sufferers from infected ears.

I am, Sirs, yours faithfully,

Dec. 30th, 1906. F. FAULDER WHITE.

FREE FEEDING OF SCHOOL CHILDREN AT CANNES AND TOULON.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

Cannes.

OF all the winter stations on the Riviera none are so largely patronised by the British aristocracy as the town of Cannes. If the presence of rich people adds to the wealth of a town then the finances of the Cannes municipality should be in a prosperous condition. Nevertheless this town has shown but little concern for the feeding of its school children. Perhaps it will be urged that children are not so poor here as elsewhere but there is no evidence forthcoming to that effect. The wages paid at Cannes are not higher than in the neighbouring towns, yet the authorities are only just beginning to take the question of *cantines scolaires* into consideration. Indeed, the first endeavour to organise something of the sort was made by one of the teachers and not by the municipality. The most important schools at Cannes overlook the railway line close to the railway station. These are known as the Farrage schools, with 500 girls in one set of buildings and 400 boys in other buildings adjoining. In the Brocca and Croisette districts there are schools for 400 girls, and 300 boys have school accommodation in the Montchevallier, 150 in the Avocat, and 350 in other districts. Altogether some 2100 children frequent the primary schools of Cannes.

At the Farrage school for girls the head mistress noticed that some of the girls were suffering. They were cold and hungry. For the most part these children lived a long way from the school and what food they might bring with them was insufficient, cold, and cheerless. Thereupon the head mistress went to the municipality and asked whether she could have gas, saucepans, and a few plates. It was only a matter of a few pounds and assent was readily given. This was the beginning. A charge of 3*d.* per week of five days is made and for this a good bowl of hot vegetable soup is given. In this manner some 50 girls are fed every day. They all bring something with them which they eat with their soup or some pastry or chocolate to eat after the soup. All these girls come from a distance; none who live in the town are accepted, as these are sent home for their mid-day meal. Even this very small matter has given rise to complications, for it was difficult to find anyone to look after the girls while they had their mid-day meal. 50 girls require some waiting upon even though they only have a bowl of soup each and the teachers have to go to their own quarters to get their meals and their rest. In the boys' schools the masters refused to attend during meal time There were many disputes over this matter. Finally it was resolved to pay a gendarme to be present, though it seemed absurd to bring in the strong arm of the law with sword, revolver, and cocked hat to distribute bowls of vegetable soup to children. Then the matter was further complicated by the fact that at the Farrage schools there were at least 30 children who were so absolutely poor as to be incapable of helping themselves in any way. Some clothes had to be given to these children and some books and also some food. A charitable institution known as the *Sou des Écoles* was already providing food in the infant or maternal schools for children whose parents could not pay. The municipality and this charitable organisation have both been helping in an irregular manner some of the children in the primary schools.

Evidently the whole question of the feeding of the school children is in an embryonic condition at Cannes. Nor does the existence of any widespread misery and destitution make itself felt. If it existed anywhere it would have been among the frequenters of the congregational schools—that is to say, the clerical schools established by religious orders. These schools were frequented by the children of Italian labourers

The Italians earn lower wages and are more needy than the French population. They therefore sent their children where there were more patronage, more pious helpers, and many others who, for political purposes, gave doles to these clerical, anti-republican centres of education. Now, however, the nuns and monks have been driven away and those who were in receipt of relief given to them for sectarian and political motives are drifting to the communal or State secular schools; so that the problem of feeding the children will become more acute in consequence of the advent of this more destitute section of the population. If the municipality of Cannes could afford to neglect the matter formerly it can no longer do so now that the congregational orders have been dissolved. It is true that a certain number of free schools have been started. Here the teachers are for the most part former pupils of the communal schools. Nevertheless they are as clerical as they dare to be. These schools are run for political purposes and in opposition to the Government. Consequently, as a means of attracting pupils, the managers will be more ready to give free meals, stationery, clothes, or anything else that the pupils may need than a municipality which has to render account to the electors and taxpayers of every penny which it spends. Nevertheless, the system of education which the nation, as represented by its Parliament and by the large majority of its municipal electors, has resolved to apply is not likely to be defeated by such stratagems as the more liberal distribution of soup in the free as opposed to the communal schools. At the same time it is fortunate for the children that this contest between the rival parties should take the form of seeing who shall best feed them.

There is an association at Cannes of the former pupils of the Farrage schools. They have been moved by all these matters. They have held meetings, passed resolutions, and, finally, waited on the mayor. At the commencement of October last the mayor informed this association that for the coming winter *cantines scolaires* would be organised in the communal schools of the town. Not only will food be forthcoming but it has been decided that free education shall henceforth be considered as including the free use of the stationery and the books necessary for such education. These latter cost at Cannes about 16*s.* per pupil per annum. Then at the girls' schools there are to be cookery classes once a week, and it is thought that on these days the free feeding will be of an extra luxurious description. When all this is done by the municipalities then such charities as the *Sou des Écoles* can devote all their resources not to what are necessities but to what may more correctly be defined as charitable purposes. Thus little children under six years old are left 10 or 12 hours at a maternity or infant school. That during the whole of the day they should have some food is not a question of charity but of absolute necessity. If little children were left ten hours without food it would be a case of manslaughter. But if a child is of delicate health the fact that his parents cannot afford to send him to a more bracing climate can scarce be accounted as manslaughter. So the argument put forward is that feeding is not charity but necessity. The School Halfpennies—that is, the society which collects halfpennies for school charities—should spend these halfpennies on charities, not on necessities. Already the *Sou de l'Ecole* sent last year 28 children from the Cannes schools to spend some weeks high up in the mountains. If this charity had not had, at the same time, to pay for the feeding of some of the children in the maternity schools it could have sent a greater number to the mountains. Now if the municipality assumes the full responsibility for all the *cantines scolaires* then the *Sou de l'Ecole* institution will be able to devote all its resources to more purely charitable purposes. Thus it will be seen that Cannes is on the eve of a great change, and this is the moment when the process of transition can best be studied.

Toulon.

The French Riviera may be said to begin at Toulon. Close at hand is Hyères, the most ancient of all Riviera stations, and many of the winter residents at Hyères do a considerable amount of their shopping at Toulon. What is occurring at Toulon can easily come well within the scope of the observations of British visitors to the Riviera. Thus they can continue to study while abroad the problem of the free feeding of the school children. The example given at Toulon is important because it is a large industrial town and therefore more like the great centres in England than mere pleasure and health resorts. It is true the principal industry is that of the arsenal, so that Toulon is more like Portsmouth than, for instance, a Lancashire manufacturing town. There are at Toulon a large working or artisan class and a class who, though not poor, are nevertheless obliged to be economical. These latter are for the most part half-pay officers and other State pensioners. This class makes many complaints about over-taxation. Consequently the municipality of Toulon had to be careful not to expend more money than was absolutely necessary for the feeding of the children. On the whole it has had an easy task, for the Toulon artisan has a high sense of his personal dignity and would scorn not to meet his own liabilities. He certainly does not ask for, or seek to obtain, any sort of charitable help. Nevertheless he wants to follow in the movement and wishes that Toulon, like every other centre, should have its *cantines scolaires*. Therefore the education department of the Toulon municipality called upon the primary schools to establish canteens. The municipality reserved for itself a right of control but left to each school a large measure of independence in the details of organisation.

The fundamental principle is that the pupils shall pay for their meals, but in practice it is recognised that a certain number of them cannot pay. The town then interferes, insisting that these children shall be fed whether they have money or not. No matter who is to blame, in no case must a child be allowed to go without food, and when necessary the cost will be reimbursed by the municipality out of the public purse. There are at Toulon 43 schools. There are mixed schools for boys and girls where 1990 pupils attended in the year 1905. In the boys' school there were 4310, and in the girls' school 3070 pupils. Finally, the maternal schools harboured 1996 little children. This is a total of 11,366 and the municipality set the figure down in round numbers at about 12,000. At the end of the month the cost of feeding the children is reckoned up and if this is greater than the payments made by the parents the municipality makes up the difference. Further, the municipality supplies all the plates, the stoves, the fuel, and pays the salaries of the cooks—in fact, provides everything except the actual eatables. With this very important help—that is to say, the payment from the public funds of all the working expenses—the managers of these cantines have found no difficulty in providing good meals for 15 centimes, or 1½*d.* each meal. Indeed, not only can this be done, but if those who cannot pay anything at all are not very numerous it suffices to cover the cost of their meals also. Nor is this all; if every, or nearly every, pupil pays his 1½*d.* there is generally a surplus or profit remaining. In that case better food is given or some delicacies, cakes, pastry, &c., are supplied. So if there is a loss, the municipality reimburses the loss; if there is a profit, the children benefit. But it is not often that a loss is recorded. The demands addressed to the municipality for such reimbursement are few and far between. The school teachers are well acquainted with the social position of the children and they decide whether or not the parents shall be called upon to pay.

As so much is left to the discretion of the managers of the schools, and as the schools rarely ask for financial help from the municipality, the educational department has but little information to give. At the town-hall there are no statistics, no precise figures forthcoming, which in itself is a proof that the *cantines scolaires* have not been much of a burden. This is due to the fact that the vast majority of the parents are able to feed or to pay for their children. Many of them go home for their midday meal and, so far as I could gather in the absence of any precise figures, it is only from a quarter to a third of the pupils who remain at school and take their midday meal at the *cantine scolaire*. A large proportion of the fathers of the children are employed at the arsenal and earn from 3.50 francs to 4.50 francs per day, so they can well afford 15 centimes for their children's meals because their work is regular. In other occupations, especially in the building trades, the wages may be as good but employment is very irregular; consequently there are moments when the parents, being out of work, cannot pay the 15 centimes. Then, of course, no pressure is brought to bear. The municipality is ever ready to feed the children of the unemployed.

Though everything has worked well so far and with little or no friction, nevertheless it is felt that the whole question must be taken in hand anew and looked

into more closely. The abolition of the congregational schools will alter the circumstances. Here as elsewhere it means that a much lower and poorer class of children will frequent the communal schools. The children of labourers, especially Italian labourers, will miss the priests, monks, and nuns from whom they used to beg all sorts of charitable assistance. Their children must now go to the communal schools and will be fed, not by charity but at the public cost, and after due and effective inquiries have been made. It will no longer be a question of attending mass regularly and of winning the favourable consideration of some lady bountiful appointed patroness of a charity more or less allied to a political organisation. The parents will not have to show their devotion to a church or to a political party, but will have to prove in an absolute, positive, business-like manner that they are really not earning enough to pay for their children's meals. There is no doubt that the law dissolving the monastical orders or congregations will fall heavily on those who have relied on begging as a means of supplementing their meagre earnings. But, on the other hand, the law now throws upon the State and the municipalities increased responsibilities. To-day, though on a much smaller scale, there is taking place in France a change somewhat like that which occurred in England after the Reformation and which ultimately compelled Queen Elizabeth to enact the Poor-law. Then the voluntary collections ordered by Henry VIII. were insensibly and gradually converted into compulsory assessments. At last came the celebrated 43 Eliz. c. 2 (1601) which definitively established the English Poor-law as a substitute for the aid that used to be given to the poor by religious orders which had been suppressed at the Reformation. On a smaller scale a similar suppression has just taken place in France and consequently the need for the free feeding of the children at the communal schools will be more keenly felt than in the past. Thus it comes about that many towns which had neglected to establish *cantines scolaires* are now busily engaged making up for this deficiency. In towns like Toulon, where the *cantines scolaires* already exist, the municipalities are examining the details and inquiring what improvements or extensions may be necessary. At Toulon the tendency will be to assimilate the management and so to arrange that the treatment of the children shall be equally good in all the districts. At present it is liable to differ. The resources may vary, as also the skill in management. As the municipality has the right to exercise a general supervising control it is desirous of adopting measures so that all the children will be equally well fed no matter what school they may attend.

MOTOR CYCLES FOR COUNTRY MEDICAL MEN.

(FROM A CORRESPONDENT.)

IN the article on motor-cars for the general practitioner which appeared in THE LANCET of Nov. 17th, p. 1387, it was pointed out that it is possible to obtain a motor-car adapted to the needs of the general practitioner for £225, but that, on the other hand, the upkeep amounts to a very considerable annual sum; furthermore, in order to maintain the car in good working order the medical man or his driver must be possessed of a certain amount of mechanical knowledge. Undoubtedly a motor-car provides a comfortable and rapid form of transit and its appearance is in keeping with the dignity of the profession. It is, therefore, well suited to the work of the medical man and, on the whole, is superior to the horse-drawn vehicle. Unfortunately, many medical men feel that the purchase and upkeep of even a comparatively cheap motor-car are more than they can afford, and some have turned their attention to the motor cycle as affording a mode of traversing the country which is both speedy and economical. The motor cycle, however, has some attendant disadvantages. It is not a dignified mode of travel; it is more or less noisy; it vibrates to some extent and it is very liable to side-slip. On the other hand it is inexpensive both in regard to its primary cost and its upkeep. It may be used either alone or in conjunction with an ordinary pedal bicycle, or as an auxiliary by those who keep a carriage.

A motor cycle may be of useful service to the country practitioner, especially in scattered districts, but it is not adapted for use in London or in large cities generally, mainly on account of its skidding propensities, which are greatly favoured by the hard-surfaced, muddy, greasy roads which usually prevail in these centres of population during the winter season. To any who may be thinking of using such a means of travelling it may be useful to point out that much discrimination has to be used when choosing a motor-cycle. In the first instance, the nature of the district in which it is to be employed should be taken into account. If the country be fairly level an engine of from 2¼ to 3 horse-power will provide sufficient energy. If the country be hilly but with no particularly steep hills a cycle with an engine of 3½ horse-power will fulfil all requirements. When the country abounds in sharp inclines a cycle possessing twin cylinders, with an engine of from 5 to 6 horse-power should be employed, but in such circumstances a motor tricycle will be found a more convenient and comfortable means of travel. The weight of the rider has also to be considered. In the case of a man weighing up to 11 stones a cycle with an engine of from 2¼ to 3 horse-power will carry him admirably. A man whose weight is from 11 to 13 stones will require a machine with an engine of from 3½ to 4 horse-power, while the would-be rider whose weight approached 14 stones either must procure a twin-cylinder cycle, or better still a tricycle.

Petrol is the fuel to be used with either accumulator or magneto for the purpose of ignition. Magneto ignition is almost indispensable for country practitioners. There is no recharging as in the case of accumulators and the contact points need far less attention. The magnet must be re-magnetised every two years or thereabouts. The transmission of power from the engine to the road-wheel is effected in the great majority of instances by the agency of belts. Chains may be used for this purpose but require a clutch, and are more applicable when a two-speed gear is employed. Some few machines use the Cardan shaft transmission, but it has made no great headway. An example of this form of transmission is to be found in the four-cylinder motor cycles. These cannot be recommended for the use of a medical man; experience with them so far teaches that they give more trouble in ignition than does the one-cylinder machine. A four-cylinder engine with synchronised ignition would be a great advance in motor-cycle construction, for the reason that the presence of four cylinders very considerably diminishes the noise and vibration, but of course a four-cylinder engine means four sets of parts, such as valves, plugs, &c., to be kept in order.

The frame of a motor cycle should be low enough for the rider to be able to touch the ground with his feet easily on both sides. The engine also should be as close to the ground and as far forward as it can be placed in order to keep the centre of gravity low, thus avoiding, or at least minimising, the frequency and danger of side-slips. The engine in this position also renders the machine more stable when running on a curve, or on any of those occasions in which an absolutely straight course cannot be followed. The rider should not sit too far back, as this position will increase the tendency to side-slip. The risks from this source may possibly be obviated, or, at any rate, diminished, by cycles fitted with twin tyres, the most recent novelty introduced with this object in view. Cycles furnished with these tyres have not had a long enough trial to warrant any definite conclusions on the point and it must be borne in mind that twin tyres add very materially to the weight of the machine. Several other appliances have been devised with the object of preventing skidding. These take the form either of a special tyre or of special attachments to the tyre, or of separate appliances such as chains, &c. Some of these act in a fairly satisfactory manner, although, of course, none is more than a partial remedy. A very light machine cannot be recommended for medical men as the stability diminishes and the vibration increases in proportion to the lightness. Motor cycles are manufactured of weights varying from 100 to 200 pounds and upwards, but the most convenient weight of one for a country medical man is from 140 to 160 pounds—in fact, a machine of medium weight. Two-speed gear motor cycles have been introduced this year and no doubt will ultimately come to the front. By means of such a mechanical device the ordinary ratio between the revolutions of the engine pulley and the road wheel can be altered at the will of the rider. Thus, with fixed gear and an engine of 3 horse-power a fair ratio is 5 to 1. In some circumstances with a two-speed gear the higher ratio might be 5 to 1 and the lower 10 to 1. Consequently, leaving out the question of friction, the motive power will be practically doubled by actually diminishing the distance travelled by

one-half. This method, in addition to being of great value for hill climbing, is also of extreme service for travelling slowly through crowded thoroughfares, and by allowing the rider to ease up on greasy roads much decreases the liability to skid. The great objection to the two-speed gear motor cycles has been the large amount of friction involved on the first or low gear; there are, however, now one or two two-speed gear motor cycles on the market which provide a direct drive on both speeds. The two-speed gear machines have not been successful enough up to the present time to enable them to be pointed out as well adapted to the needs of a country medical man.

The vibration of a motor cycle is a serious drawback from a medical point of view, because after undergoing such an ordeal for some little time the rider would be in no condition to undertake a delicate operation. Unfortunately it is impossible to obtain a motor cycle from which vibration is entirely absent, but at the same time appliances are in use which greatly decrease this objectionable feature. Motor cycles made by many firms have spring forks attached to the front part of the machine, while some few firms provide spring attachments to both front and back. These devices do actually diminish vibration very considerably.

Pedals are sometimes provided with a motor cycle and sometimes not provided, but unless the rider is sufficiently experienced to form his own opinion they should be retained as the novice is better with them. Gearing should vary with the power of the engine, the nature of the roads to be traversed, and the total weight of machine, rider, and everything carried, even an extra pound or two making a very considerable difference in the hill-climbing capacity. An engine of from 2¾ to 3 horse-power might be reasonably geared 5 or 5½ to 1. An engine of from 3½ to 4 horse-power might similarly be geared 4½ to 1.

If a proper luggage carrier is provided, any instruments, medicine case, or other appliances that a country practitioner is likely to need can be carried easily on a motor cycle. The speed of a machine such as that just described will be from eight miles to 36 miles an hour according to manipulation of levers. It should be remembered that the higher the power the more difficult the manipulation at low speed, and the danger of skidding is also very much increased. The initial cost of a first class 3½ horse-power motor cycle with belt transmission will be about £48. This sum will include luggage carrier, stand, spring forks, and magneto-ignition; number plates, a lamp, and a really sonorous horn will also be required. The same advice may be given to intending purchasers of motor cycles as was given in the article on motor cars in THE LANCET of Nov. 17th—namely, that the cycle should be bought from a good maker.

In regard to cost of upkeep, the expense of maintaining a motor cycle in proper order is trivial when compared to the corresponding outlay for a motor car. As with the motor-car, so with the motor cycle, the tyres are by far the most expensive item of the annual expenditure on upkeep. The front tyres of a good machine will last through the wear and tear of 6000 miles of road work; the back tyres will last for about 3000 miles. The writer is acquainted with a rider of much experience who changes his back tyre every 2000 miles, but in an ordinary way the first quoted figures may be depended upon as giving about the average of tyre wear. An average of three punctures occur per 1000 miles. At a rough estimation the amount of petrol used by a medium-powered motor cycle works out at about one gallon per 100 miles, but this quantity, of course, will vary with the size of the engine and the make of the carburetter. The lubricating oil used averages in price about a quarter of that of petrol. Comparing the cost of the upkeep of a motor car with that of a motor cycle, it will be no figure of speech to state that when a medical man has mechanical knowledge enough to keep his motor-car in good working order and thus to avoid a great amount of expense, in such circumstances even the upkeep of the motor car will be at least five times more than that of a motor cycle. Great care must be exercised when riding on roads the surface of which is greasy. Wet roads *per se* are of no particular disadvantage to the driving of a motor cycle, especially of one in which the magneto system of ignition is employed, the danger of side slipping being much diminished thereby; it is the greasy surface of roads, caused by wet in certain circumstances in towns and villages, that constitutes the great drawback to the general employment of motor cycles. Limestone roads, which abound in some portions of the country, are peculiarly liable to become greasy when wet and are therefore unsuited to the use of motor cycles when in this condition. For night riding a powerful acetylene lamp is absolutely necessary.

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

The University Guild of Graduates.

IT was provided in the charter of the University that a Guild of Graduates might be formed and it has been decided that the time has now arrived for bringing the guild into existence, a sufficient number of graduates being available. The council has ruled that all graduates of the University and all associates of Mason College are eligible for membership of the guild. The subscription fee for life membership is 10*s.* and already 125 graduates have been enrolled. In all probability a meeting will be held in January for the purpose of arranging a constitution; therefore all who are interested in the guild should communicate with the authorities as soon as possible.

The Women's Hostel.

A few weeks ago I drew attention to the scheme for the residential hostel for women students. At that time it was estimated that the sum of £12,000 would be required, but it is now thought that £14,000 will be necessary and of that sum £9000 have already been promised. Therefore it is quite evident that the proposal commended itself to the supporters of the University and that the objects of its promoters will be successfully accomplished. This is one method of subsidising education and it undoubtedly possesses advantages, but it would be well for the future prestige of the University if some of its generous supporters would establish more and more valuable scholarships than can at present be offered to clever and ambitious students.

Tuberculosis.

In common with other cities we are at present deeply interested in the prevention of this formidable disease but we find our steps towards improvement heavily clogged. In the city area we have powers to seize and destroy tuberculous meat and milk, and our health officers are so active and persistent that those who attempt to make money by selling diseased animals are exerting their influence to try to abate the activity by attempting to enforce compensation for the destruction of the diseased food. This outcry is altogether unfair to the general public, for to enforce compensation for the destruction of diseased meat will be merely to encourage unscrupulous persons to deal in it. It is quite certain that if breeders of cattle and pigs and dairy farmers will carry on their trade under proper conditions and with due care the disease can be eradicated, so far as animals are concerned, and to secure this good result some aid might possibly be given from the public purse, although it would only be just if local authorities were forced to insist that all persons under their control should carry out their trades in such a manner as to cause no public danger. On the other hand, to give compensation for diseased animal food and contaminated milk is simply to endeavour to perpetuate the quite unnecessarily bad conditions under which many animals are at present bred and housed and any attempt to enforce such compensation should be strenuously opposed.

The Welsh Water supply.

Our supply of Welsh water is occasionally rather darker in colour than is desirable in table water, but it continues to be of excellent quality and is abundant in quantity. At present we receive 19,000,000 gallons per day and the reserve supply is so good that it is estimated we should still be well supplied if no rain fell for nine months. These are undoubted advantages and although we pay somewhat heavily for them they are worth the price. At the same time it is interesting to note that other people profit by our necessities, for in Cwmddanddwr alone our corporation pays 11*d.* in every 1*s.* of the rates collected, and the rates in the whole of the Rhayader union are greatly reduced by part of the sum which we pay for the privilege of our good water-supply.

The Spreading of Scarlet Fever.

It might be thought that a knowledge of the infectiveness and danger of scarlet fever was widely spread at the present

day but it is obvious that many people are utterly reckless with regard to it. This recklessness is particularly exemplified by two cases which have recently come to light in this district. In one case a young man suffering from the disease insisted on going out although when other cases had been in the house in which he lived warning had been sent that no person was to expose himself. In the second case one child in the peeling stage was sent to school and another was sent to nurse a baby who naturally contracted the disease. In both of these cases fines were inflicted. It might be well if convictions of this kind were publicly placarded for they would then have an educative influence.

Open Spaces.

The Playgrounds, Open Spaces, and Playing Fields Society has a somewhat unwieldy title but it is doing good work. Soon after its inauguration it secured two valuable gifts of land; to these two others have been added. The society now seeks to obtain £18,000 for the purpose of acquiring at least one open space in each ward of the city. This does not seem a very large sum to ask, and if a public subscription list were opened and properly advertised the sum ought to be obtained in a very short space of time, for it could only be looked upon as a very good investment from which the city as a whole would draw great advantages, whilst the sum given by each individual need only be very small. Moreover, this is an object for the support of which working men may well be appealed to.

The Financial Result of the Musical Festival.

The final result of the last musical festival has turned out better than was at one time expected. The total receipts were £13,600, of which a little less than one-third was accounted for by donations and the remainder by the sale of tickets, &c. The expenses amounted to £9184; consequently the General Hospital, for the benefit of which the festival is held, has received £4415, or about £105 less than in 1903.

Jan. 1st.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Sewer Ventilation.

SOME time ago the Manchester corporation appointed a special committee on the ventilation of sewers and a report was received on Dec. 13th, 1906, on some experimental work. In the Wilmslow-road 11 specially constructed tramway poles were connected with the sewers with the view of assisting in their ventilation. They are said to have done their work fairly well, drawing the gas from the sewers and discharging it at a height of 25 feet above the street level. These experiments are to be carried further and the committee decided that the city surveyor should select an area where a series of experiments could be carried on by means of poles such as have been mentioned or by pipes fixed to the gables of houses; also that arrangements should be made with Professor S. Delépine to begin an investigation as to the effect of sewer gas on health in such quantities as escape from the traps and grids—"whether, in fact, these appliances lead to any ill effects beyond offensive smells." This investigation will not be a very easy one and it will probably extend over two years. This question of sewer ventilation is not a new one, for the committee was appointed six years ago and in that period many methods for the ventilation of sewers have been investigated, with the result that they do not succeed or are not adapted to the Manchester sewers. In 1901 Mr. de Courcy Meade suggested that the sewers should be ventilated by upcast shafts, that the surface ventilators should serve as inlets for fresh air, and that manufacturers' refuse containing chemicals liable to generate explosive and dangerous gases should be rigidly excluded. The bacteriological work will be carried on by Professor Delépine and Dr. Gilbert Fowler will continue to take charge of the chemical work. It is recommended that a station should be provided where bacteriological and chemical observations can be carried on continuously with all the precautions necessary for insuring accuracy. So far back, indeed, as 1903 Professor Delépine collected apparatus with the object of ascertaining the influence of sewer air on health but owing to the removal of his laboratory there has been unavoidable delay. It is very probable that the Public Health Laboratory grounds will be utilised for the establishment of a station for the complete study of this question.

Christmas in Manchester.

Manchester has for the last week or two been much given up to "Christmassing," as it is often called in these Northern parts. There has also, somewhat unexpectedly, been "seasonable" weather in great variety. It is said that between Christmas night and the morning of Dec. 26th no fewer than 4,500,000 tons of snow fell in Manchester streets and that to help in its removal 1700 of the unemployed were called on to give their aid to the 900 men on the staff of the cleansing department. "Seasonable" weather suits the robust and vigorous and in the case of the young adds a piquant enjoyment to the festivities of the time, but to the feeble and to the destitute dwellers in mean streets, short of food, of clothing, and of fuel, it is a time in some cases of tragedy, and in all of misery and endurance. But, on the whole, Manchester has fared better than many other places and the seasonable weather, on the whole, has been enjoyed. The charitable, of whom there are many, have been active and helpful and the police-court records show, as one of the papers puts it, that if people have been "merry" they have also been "wise."

Heywood, the Antivaccinationist's Refuge.

During the past year the Heywood borough justices granted 600 certificates of exemption from vaccination; the fees paid have amounted to £30. Applicants have come from all parts of the country, from Newcastle and from Cardiff, one person travelling 280 miles to obtain the certificate guaranteeing that his child should not be protected from small-pox. This may be taken as a proof of sincerity, if not of wisdom.

A Busy Day for the Coroner.

Thursday last, Dec. 27th, 1906, was a very busy day for the coroner. Between Monday and Thursday 24 cases of sudden death were reported to the coroner, some occurring on Christmas Day. In four inquests were not necessary and seven were held over to another court day, but inquests were held on the remaining 13 cases. Of these, five children had died while in bed with their parents, four of them on Christmas morning. This seems to point to previous festivities on the part of the parents. It is rather singular that there was only one child burnt to death, as these cases are so numerous. There was, as usual, no guard before the fire, so this child of six years added one more to the large total killed since the Christmas of 1905.

Jan. 1st.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Housing Committee and Insanitary Property.

THE ensuing year ought to witness a considerable diminution of insanitary dwellings and the provision of better abodes for those dispossessed owing to the recent resolution of the housing committee of the city council, which runs thus:—

> That it be recommended that the city council place at the disposal of the housing committee £10,000 for the purchase and demolition of insanitary property under the powers of the Liverpool Sanitary Amendment Act, 1864, and the various statutes and provisional orders amending the same; also £27,000 for the purchase of land and erection of dwellings under the Housing of the Working Classes Act, 1890; also £9428 on artisans' dwellings ordinary account.

More than 100,000 people are now living in sublet houses, exclusive of the model lodging-houses; and during last year 1300 convictions for overcrowding were obtained. One of the chief difficulties in the way of demolition in the lower parts of the city is the large amount of money required to compensate the owners of public-houses in the condemned areas.

The Mitchell Banks Memorial Lecture.

Sir William Macewen delivered the second William Mitchell Banks memorial lecture at the University on Dec. 14th, 1906. He took for his subject the Regeneration of Bone. Sir James Barr, senior physician to the Liverpool Royal Infirmary and the chairman of the medical faculty of the University, presided. The theatre was crowded by members of the medical faculty and medical practitioners of Liverpool and the suburbs. Sir James Barr introduced Sir William Macewen as one of Sir William Banks's oldest pupils. In the evening the lecturer was entertained at dinner at the

Exchange Station Hotel, Sir James Barr again presiding. Mr. F. T. Paul, surgeon to the Royal Infirmary, proposed Sir William Macewen's health and offered him his cordial thanks for his lecture and for the appreciative references he had made to the late Sir William Banks. Sir William Macewen made a suitable reply.

The School of Tropical Medicine and Sleeping Sickness.

Sir Alfred Jones, the chairman of the school, has sent the following telegram to the Emperor of Germany:—

As president of the Liverpool School of Tropical Medicine I desire to congratulate your Majesty on recent valuable work done by Professor Koch in confirmation of the discovery made by the Liverpool School of Tropical Medicine of a possible remedy for sleeping sickness.

West African Trade Section of the Liverpool Chamber of Commerce: Health and Sickness in West Africa.

At the last meeting of the West African trade section of the Chamber of Commerce Dr. R. E. McConnell delivered an address on his recent visit to the West African coast, where he had been for 15 months at an important mine. No deaths occurred at the mine from sickness, owing largely to the improved class of miners now employed and to the care of themselves that Europeans have learnt by experience. He had observed six cases of blackwater fever, in one of which the temperature reached 108·6° F. They all recovered under careful nursing, and he thought that in places where it could be recognised early and carefully treated blackwater fever was losing much of its terrors in the popular mind. He was pleased to hear that the Liverpool School of Tropical Medicine was about to organise an expedition to inquire into the cause, course, and treatment of blackwater fever. Very few cases of sickness at the mines were traceable to the water-supply. Where he was latterly stationed the rivers were the only source of water-supply, but owing to careful filtering and boiling not a single case of sickness which could be traced to the water-supply had come under his care. Everywhere he found that the work of the Liverpool School of Tropical Medicine was thoroughly appreciated and there was a marked desire to help any members of its expeditions.

University of Liverpool: Diplomas in Tropical Medicine.

At a meeting of the Senate of the University of Liverpool held on Dec. 19th, 1906, diplomas in tropical medicine were awarded to the following gentlemen: H. G. Bennetts, R. M. Carter, R. W. Clements, A. W. Sampey, A. E. Smithson, and J. van S. Taylor.

Jan. 1st.

LEEDS.

(FROM OUR OWN CORRESPONDENT.)

The General Infirmary: Resignation of Mr. W. H. Brown.

To the great regret of everyone connected with the infirmary Mr. W. H. Brown, who has held the position of honorary surgeon to the institution for the last 16 years, has found it necessary to hand in his resignation. Mr. Brown has for some time been in ill-health and, though with characteristic self-sacrificing zeal he has carried on his hospital duties, it has been apparent to all that he has only done so at great personal inconvenience and doubtless with some embarrassment in connexion with his private professional engagements. In accepting Mr. Brown's resignation, which came before a very full meeting at which Mr. Brown's professional colleagues were fully represented, the following proposition was unanimously carried:

That in accepting Mr. W. H. Brown's resignation of his position as honorary surgeon to the General Infirmary at Leeds, the weekly board desire to place on record their high appreciation of the great services which Mr. Brown has rendered during the period of his association with the infirmary, and in particular during the 16 years that he has held the post of honorary surgeon. Conspicuous for his interest in his patients and his care for the honour of the infirmary, he has also won high esteem from his colleagues on the weekly board and the faculty, and from the members of the staff of the institution. The weekly board desire to express their great sympathy with Mr. Brown in his inability to bear the double strain of his public and private practice, but hope that now he is relieved from his heavy duties at the infirmary he will speedily regain his full health and strength

In consequence of the resignation of Mr. Brown, Mr. B. G. A. Moynihan automatically becomes honorary surgeon with full charge of beds. Mr. Moynihan was appointed assistant surgeon about 11 years ago, and at the end of ten years' service in that capacity became, in harmony with the recently revised rules, eligible for the position of "hon. surgeon with charge of out-patients." This position carries with it the succession to any vacancy that may arise on the full staff without the necessity for an election. Mr. Walter Thompson becomes senior assistant surgeon and the special election committee will shortly be called upon to fill the resulting vacancy of assistant surgeon.

The University of Leeds.

The degrees of Bachelor of Medicine and Bachelor of Surgery were conferred by the Vice-Chancellor on the following successful candidates in the recent examinations: V. C. Hackworth, W. O. McKane, E. W. Reed, and T. Whitehead. The graduation ceremony took place in the library of the medical school. By a recent regulation Part II. of the final examination—i.e., the examination in medicine, surgery, and midwifery and the various subjects included under these headings—is now held in March and December instead of in March and July as formerly.

Jan. 1st.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Edinburgh Town Council and the Notification of Pulmonary Tuberculosis.

AT a recent meeting of the Edinburgh town council Dr. G. M. Cullen, chairman of the public health committee, submitted the resolution of his committee recommending the town council to approach the Local Government Board of Scotland asking it to have consumption added to the schedule of diseases attached to the Compulsory Notification Act. The arguments which Dr. Cullen used on this occasion were similar to those indicated in THE LANCET of Dec. 22nd, 1906, p. 1754, as having been used by him to the public health committee. He spoke strongly and effectively and the council adopted the recommendation by a very large majority. Dr. Cullen is to be congratulated on his handling of this matter; at the same time, the fact need not be ignored that a considerable weight of medical opinion in Edinburgh is opposed to compulsory notification. It has, however, had no public expression given to it, and there can be little doubt that the opinion of the laity has somewhat rapidly matured in favour of compulsion. It now lies with the Local Government Board to obtain the inclusion of pulmonary tuberculosis in the Compulsory Notification Act.

The Royal Society of Edinburgh.

Dr. Dawson F. D. Turner read a paper before the Royal Society of Edinburgh on Dec. 17th, 1906, on the Hæmorenal Salt Index as a Test of the Functional Efficiency of the Kidney. He had compared systematically the electrical resistance of the blood and of the urine in a large number of medical and surgical cases and has originated a ratio which he has termed "the hæmo-renal salt index." In health this would be equal to three, four, or five whole numbers, viz.:—

$$\frac{\text{Electrical resistance of blood}}{\text{Electrical resistance of urine}} = \frac{900}{225} = 4.$$

The higher this number was the healthier, other things being equal, was the condition of the patient. If this index increases it indicates that the blood contains fewer salts or is richer in corpuscles and that the urine contains more salts and that the functional activity of the kidney is increasing. If the renal index diminishes, then the kidney is becoming sluggish and less efficient. He then referred to a number of cases and particularly to some medical cases whose renal indices he had examined from time to time for more than two months. He pointed out that the renal index well reflected the general condition of the patient, rising when the patient's condition got better and falling when his condition got worse. In surgical cases this method of investigating the renal efficiency appeared to be of considerable value and its indications so far seem to tally with those based upon cryoscopy. Some surgical cases in which a successful operation had afterwards been performed were referred to in detail.

Glasgow Dental Students' Society.

In proposing the toast of "The Dental Profession" at the ninth annual dinner of the Glasgow Dental Students' Society Professor H. E. Clark, ex President of the Faculty of Physicians and Surgeons, Glasgow, dealt with the present

position of the dental profession. In his opinion qualified dentists had a great deal to regret in the present state of matters. It was a most discreditable thing that no precaution or safeguard was taken against those who were practising as quack dentists. There was no incentive for a man to become a qualified dentist beyond the facts that he got a better knowledge and a slightly better position in society. He would be very pleased if they had on the council of the faculty representatives not only of the medical Licentiates but also of Licentiates in Dentistry. He thought also they should make an effort to become recognised by the General Medical Council so far as representation was concerned.

Proposed Health Association for Anderston.

A meeting of the medical profession in Glasgow and the west of Scotland, convened at the instance of the local branch of the British Medical Association, has recently been held in the Faculty Hall for the purpose of considering the proposed Anderston and District Health Association, with special reference to the medical dispensary connected therewith. The meeting was very largely attended and after considerable discussion a resolution was unanimously adopted to the effect that the establishment of another open dispensary was unnecessary and representatives were appointed to form a deputation to meet the directors of the proposed association and to express the views of the meeting.

Jan. 1st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Royal College of Physicians of Ireland.

AT a recent meeting of the Committee for the Prevention of Tuberculosis held at the Royal College of Physicians the question of the conveyance of tuberculosis by raw milk was considered and after discussion the following proposition was unanimously adopted:—

That in the face of the constantly accumulating evidence that tuberculosis may be conveyed by the medium of raw milk, it should be obligatory on all boarding schools, orphanages, and similar institutions to use apparatus for the sterilisation of milk.

The report of the Viceregal Commission on the Poor-law service in Ireland was also submitted, as the volume contains valuable recommendations regarding the means which should be adopted to deal with the prevalence of consumption and advocates that some of the existing workhouses should be selected and converted into sanatoriums. In this connexion it is satisfactory to note that Dr. T. J. Browne, the Local Government Board inspector, addressed a joint meeting of the Clonmel rural councils on Dec. 22nd, 1906, urging the necessity for taking action with other councils in Waterford and Tipperary for the purpose of establishing a sanatorium for both counties. The councillors were all favourable to the proposal and a motion was adopted asking the rural and urban councils of the counties Tipperary, Waterford, and Kilkenny to join in the establishment of a sanatorium.

Royal Victoria Hospital, Belfast.

Lady Pirrie sent a Christmas contribution of £25 to the funds of the hospital and intimated her intention of contributing a number of flannel jackets for the patients and also plum puddings for both the patients and the resident staff. The board of management returned its most grateful thanks to Lady Pirrie for her generous donation and gifts and for her continued kind remembrance of the hospital on which she and Lord Pirrie have conferred so many favours.

The late Alexander Stewart Merrick, M.D. R.U.I.

The death occurred on Dec. 19th, 1906, at his residence in Belfast, of Dr. A. S. Merrick who for many years was resident medical superintendent of the Belfast Asylum. The deceased, who was in his sixtieth year, had been in poor health for some years and died after a cerebral attack. A Cork man, he studied at Queen's College, Cork, where he was a scholar, and graduated M.D. of the old Queen's University in 1869. Shortly afterwards he was appointed assistant medical superintendent of Cork Lunatic Asylum. In 1873 Dr. Merrick was elected resident medical superintendent of Donegal Asylum at Letterkenny and in 1875 he succeeded the late Dr. Stewart as head of the Belfast District Asylum, a position he occupied until 1897, when, owing to delicate health, he was obliged to resign. He was an excellent administrator, a man of very kindly disposition and of many accomplishments, not the least of which was music. Dr. Merrick is survived by his widow, one daughter, and three sons, the eldest being in the medical profession.

Jan. 1st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Prevention of Lead Poisoning.

AT a recent meeting of the Senate Professor Dieulafoy, *commissaire du Gouvernement*, recommended the prohibition of white lead as an ingredient of paint, and concluded his remarks by saying that to permit the use of white lead for painting the interior of houses was the same thing as knowingly to expose painters to the risk of being poisoned, although the laws of hygiene and the dictates of humanity gave them a right to protection. He further argued that the conditions of their work made it necessary to take energetic measures for the preservation of the health of house painters. After some remarks by M. Viviani, Minister of Labour, who asked that the Bill as introduced by the Government should be passed, the general discussion was closed and the Senate resolved to pass to the discussion of the clauses.

The Prix Carlier at the Academy of Sciences.

M. Paul Juillerat, keeper of the sanitary records (*chef du casier sanitaire*) of Paris, has just been awarded the Prix Carlier by the Academy of Moral and Political Sciences for his work entitled, "A Necessary Institution: the Sanitary Record of Houses." Based upon observed facts and carefully verified statistics, these documents (*travaux*) form a striking contrast to the brilliant theories which have too often owed their origin to *a priori* conclusions existing in the imagination of distinguished authorities on hygiene. These theories have sometimes given rise to practical applications not in accordance with scientific principles and therefore foredoomed to end in disappointment.

Blindness among Arabs.

At a meeting of the Academy of Medicine, held on Dec. 4th, 1906, M. Chauvel read a paper communicated by M. Boigey dealing with the subject of blindness among Arabs. The observations therein described showed that the principal causes of blindness among Arabs were, in order of their importance, uncleanliness, flies, diffused glare of the sun, dust containing sandy particles, and the excessive use of koheul (sulphide of antimony). Small-pox, syphilis, and tuberculosis were not usual causes of blindness.

The Treatment of Pneumonia.

At the same meeting of the Academy of Medicine M. Albert Robin read a paper of great therapeutic interest. He said that in the defervescing stage of pneumonia, and often before the fall of the temperature, there was an increased production of urea and uric acid simultaneously with an increase in the nitrogenous metabolism (*coefficient d'utilisation de l'azote*) and a diminution in the products of respiration, so that on the whole there was no augmented consumption of oxygen. These data implied that in the spontaneous crisis of pneumonia one of the associated conditions, if not the cause, was a process of hydration and deoxidation, by which the organism defended itself against the morbific action of the disease. In this property of increasing the aggregate consumption of nitrogen, the production of urea and uric acid, and the general nitrogenous metabolism, with simultaneous diminution of the consumption of oxygen, the "metallic ferments"[1] acted similarly to the spontaneous efforts by which nature endeavoured to meet an attack of pneumonia, and these ferments might, therefore, either initiate or accelerate recovery in such cases. Observation having shown that the ferments had no influence on the lesion of pneumonia, but only on the toxi-infectious element, it was necessary in the treatment of the disease to assist their action by adjuvants such as bleeding, fractional doses of calomel

[1] THE LANCET, Dec. 24th, 1904 (p. 1816), and August 12th, 1905 (p. 489).

administered on only one day, alcohol in moderate doses, bichlorhydrate of quinine in small doses, and blistering after the fifth day. Among 53 cases of pneumonia treated by this method, 20 of which were very serious, M. Robin stated that he had only six deaths—i.e., a mortality of 11 per cent. In 63 per cent. of the cases the fall of temperature occurred before the eighth day. The metallic ferments were given either by deep hypodermic injections in doses of ten cubic centimetres or in very serious cases by intravenous injections of five cubic centimetres. The nature of the metal appeared to be immaterial. The injections ought to be commenced from the fourth day and continued about every two days.

Results obtained by the Antineoplastic Treatment of Cancer.

At a recent meeting of the Société de l'Internat des Hôpitaux de Paris M. Doyen showed 15 patients who were, or had been, suffering from cancer and who had been treated by the antineoplastic method which he has been advocating for more than two years. Some of the patients had been considered to be incurable four or even five years ago. At present they were in a very satisfactory condition; their general condition appeared to be excellent and the tumours had either diminished or had ceased to increase. One of these patients had been operated on for cancer of the stomach some years ago and the disease recurred in the abdominal wall with formation of a gastric fistula. Under M. Doyen's treatment the gastric fistula closed spontaneously. On Dec. 6th M. Doyen received at his clinic several well-known medical men and showed them 30 patients who were all examined with the utmost care and who had either obviously recovered or were in a fair way to recovery. Some of the cases were really remarkable. They all came forward one after the other readily answering the questions asked by the visitors. At the request of one of the medical men M. Doyen described the present condition of the patients who were examined two years ago by the commission appointed by the Surgical Society. From about 50 patients whom M. Doyen offered for selection the commission picked out 24, and to these it added two others against the advice of M. Doyen, who believed that in them the disease was too advanced, and in point of fact they died a few days afterwards. When the report of the commission was read on July 12th, 1905, there were 19 of these patients still alive. The report stated that among the 26 patients three were unsuitable (*inutilisables*), two showed no change, one had no symptoms of relapse, and 20 showed a manifest aggravation, which in some of them was very rapid. In 1904 all these patients were in a serious condition and some of them were even moribund, but at the present time—i.e., two years later—the particulars relative to them were as follows. Of the three who were said to be unsuitable or not sufficiently definite (*non démonstratifs*) one was dead, while the other two were now quite well and had returned to their several homes (*dans leur pays*). The two whose symptoms were said to be unchanged had recovered and were shown. The patient who was said not to have relapsed was still without any symptoms of that kind. Of the 20 patients who were said to have shown a manifest aggravation, 15 were alive; two were in a condition which gave rise to anxiety, but 11 were shown to the party of visitors in perfect health, the majority having come from a distance in order to submit themselves to this decisive examination.

Jan. 1st.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Cremation and the Government.

SOME members of the municipal committee in Budapest recently initiated a movement for the erection of a crematorium, and, the idea meeting with universal approval, a site had already been chosen for the building which was planned by a famous architect. Sufficient money was forthcoming and nothing was wanting except the approval of the Ministry. At last, after considerable delay, an order was received prohibiting the erection of a crematorium.

The Decrease of Alcoholism.

The temperance movement is making good progress. There is a considerable decrease of the number of cases of drunkenness as compared with the corresponding figures for previous years, when from 20 to 25 drunken persons used to be cared for by the ambulance societies on a Sunday, while now there are always less than ten cases to be conveyed to hospital. The medical board of the city municipal hospitals has recently forbidden the giving of alcoholic beverages to patients. This is, however, only an experiment to be continued for a month. If it finds—as it hopes to find—that the use of alcohol may be discontinued without any detriment to the patients then alcoholic beverages will be absolutely struck off the dietary of the Budapest hospitals.

Trachoma.

Every possible effort is being made to prevent the spread of trachoma in Hungary, but the cases nevertheless increase in number from year to year. There are places in Hungary where the disease is so common that special schools have been built where both the pupils and the teachers are trachomatous. There are also special trachoma hospitals both for soldiers and civilians. The south of Hungary is divided into trachoma districts, where specialists are employed to inspect school children, officials, hospitals, hotels, &c., once a week. The latest preventive measure is the compulsory removal of trachomatous patients to isolation hospitals where they are detained until they are no longer capable of spreading infection.

The Care of the Feeble-minded.

A conference of the after-care committees of the larger towns of Hungary was recently held at Budapest to discuss the various questions and difficulties connected with the treatment of the feeble-minded. It was decided that every school authority should be ordered to provide suitable accommodation for defective and epileptic children. At the age of 14 years or sooner every child of this type should be transferred to the residential school, there to remain to the end of his days—a child still, but a harmless, happy child, instead of a dangerous and degraded one. All the book learning in the world would be of no use to such a child, but, on the other hand, manual training would be most helpful, and it should always be of a practical kind. The responsibility of the State towards the feeble-minded was afterwards discussed, and the opinion was expressed that the most suitable authority to deal with the matter was the county council which already had control over lunatics and over education.

Bacteria and Light.

It has been generally accepted that ultra-violet rays have little or no effect upon bacteria lying deep in the tissues of the body. To obviate this defect some Roentgen-ray operators have endeavoured to take advantage of the high penetrating power of the yellow-red rays. The first surgeon who adopted this method was Dr. Dreyer of Vienna, and after him Dr. Verebély of Budapest experimented with it by inserting a sensitive body deep in the tissues and then applying the light, which acted on this sensitised substance, at the same time eliminating the green and orange rays from the pencil of light. The therapeutic effects of this procedure have been very favourable. He recorded the history of 25 cases of deep-seated tuberculosis which speedily recovered under its influence. The sensitising agent used is either a 1 per cent. or a 0·1 per cent. solution of erythrosine in another solution of sodium chloride of 0·85 per cent. strength. This mixture is inserted deep into the tissues by means of a subcutaneous syringe. After this an interval of from two to five hours is allowed to elapse before applying the Finsen lamp for 15 or 20 minutes.

Dec. 28th, 1906.

NOTES FROM INDIA.

(FROM OUR SPECIAL CORRESPONDENT.)

The Seven Days Fever of Calcutta.

A DISCUSSION on this subject has recently been held by the medical section of the Asiatic Society in Calcutta. An opening paper was read endeavouring to show that this fever was identical with dengue, but those who had seen real dengue were unanimous in distinguishing between the two diseases. The so-called seven days fever has many symptoms likening it to dengue on the one hand and to influenza on the other. The longer duration of the fever, the terminal slight rise of temperature, the absence of a complete reduction to normal during the interval, the absence of the subsequent pains in the joints, the lesser

suffering throughout, and the fact that it does not occur in rapidly spreading and extensive epidemics distinguish this seven days' fever from dengue. The very frequent occurrence of a rash with dengue is another distinguishing character, although a slight and evanescent reddening has been noticed in some cases of the Calcutta fever. In this latter disease a rash is the exception, in dengue it is the rule. On the other hand, the Calcutta fever is generally recognised to differ from influenza by the absence of catarrhal symptoms and by the mildness of the complaint. Observers have recorded other forms of fever lasting but a few days, but although the diagnosis of these forms is uncertain they are easily distinguished from the seven days fever of Calcutta. The general opinion is that this fever is quite distinct from all others. It was announced by Major L. Rogers, I.M.S., that he had isolated a bacillus having the characters belonging to those of the colon group but that in certain details it differed from other recognised varieties of this group. There is no doubt that this discussion has "cleared the air" and the particular fever can now be studied without confusion with others.

A Nursing Organisation on the East Indian Railway.

A nursing institute and staff of nurses have been established for the large East Indian Railway. Officers in isolated stations have felt the need of this for a long time and the provision has now been made with an equitable scale of charges. The headquarters will be at Allahabad, where the nurses will be housed in a special bungalow. The charges will be based on salaries, ranging from Rs.2 a day for those earning Rs.250 a month up to Rs.8 a day for those whose salaries are over Rs.1000 a month. At present only three nurses have been engaged but the staff will be increased later.

The Recrudescence of Plague.

The annual recrudescence of plague is slowly but surely showing itself. The mortality throughout India for the week ending Dec. 1st was 5992, a rise of several hundred deaths over the previous week. The deaths were distributed as follows: Bombay, 2000; United Provinces, 1280; Punjab, 1536; Central Provinces, 350; Central India, 327; and Bengal, 261. There is no sign at present of a fresh outbreak in Bombay City and the returns from Calcutta continue small.

The Mulkowal Disaster Again.

The Government of India has resuscitated the unfortunate Mulkowal disaster by publishing a resolution embodying correspondence and further papers concerning it. It will be remembered that a change in the preparation of the prophylactic lymph was instituted in 1902 by the omission of a small proportion of carbolic acid and one of the bottles of this new preparation was associated with the disaster. The commission of inquiry found that the contamination of the bottle took place before it was opened and expressed the opinion that the omission of carbolic acid in the fluid was a mistake. For all practical purposes the Lister Institute confirmed these findings. There is now some slight modification made in the wording of the report of the Lister Institute to the effect that while the evidence points to the contamination having been introduced before the arrival of the fluid at Mulkowal, this cannot be asserted as a proved fact. The object of the Government resolution seems to be to remove any misapprehension that may exist as to the precise degree of responsibility which attaches to M. Haffkine for the calamity.

Dec. 15th, 1906.

CHARGES AGAINST CERTAIN HOSPITALS AT ST. PETERSBURG.—A note in the *Novoe Vremya* asks whether an end is to be put to the scandals in some of the St. Petersburg hospitals, and quotes an extract from the report of the revising committee to the effect that at the Obuchovsk Hospital the bathrooms were used indifferently as closets, eating-rooms, and receptacles for refuse; and now it is said that compresses are made from the skirts of patients who arrive, and so on. The journal expresses its astonishment that the medical men of the town should put up with this unsatisfactory treatment of their patients. The most serious of the charges are said in the official *Torg. Prom. Gazeta* to be confirmed by a series of photographs taken by the revising committee both as to the Obuchovsk and the Sv. Nikolai Tchudotworetz hospitals.

Obituary.

WILLIAM TRAVERS, M.D. DURH., F.R.C.S. ENG., M.R.C.P. EDIN., L.R.C.P. LOND.

IN Dr. William Travers of Kensington, whose death occurred at his residence in Phillimore-gardens on Dec. 17th, 1906, the medical profession has lost a very able member. Dr. Travers was the son of the late Mr. Frederic Travers of Poole, Dorset, and was born on August 23rd, 1838, at Abingdon. He was privately educated, afterwards becoming the pupil of Dr. Salter of Poole, under the then very usual system of apprenticeship. Joining the Charing Cross Hospital at the age of 21 years he became a Licentiate of the Society of Apothecaries and was appointed house surgeon. In the following year—i.e., in 1860, he became a Member of the Royal College of Surgeons of England, and in 1861 he became also a Licentiate of the Royal College of Physicians of London. In 1864 he obtained the Fellowship of the Royal College of Surgeons of England. He took the degree of M.D. at the University of Durham in 1879 and also the Membership of the Royal College of Physicians of Edinburgh in 1876. To return to his career at Charing Cross, after his house surgeoncy he was elected resident medical officer of the hospital in 1860. He held the post till 1866, when he commenced private practice. He was elected physician to the Chelsea Hospital for Women in 1883 and held the post until 1894. He was a Fellow of the Medical Society of London, of the Obstetrical Society, and of the Gynæcological Society. Of the last he was one of the founders and was honorary treasurer for a long time, but owing to failing health had to decline the presidency. He was also a member of the Clinical Society and of the West London Medico-Chirurgical Society, of the latter of which he was formerly President. It will be seen by this brief record that Dr. Travers led a very full and busy professional life and his exertions were crowned by long-continued success in private practice. He was an extremely careful diagnostician, very practical in his suggestions for treatment, and quick to win the confidence of his patients. Their concern was very great to learn shortly before his death that an increasing loss of sight would compel him to curtail his exertions and to limit his share in the practice largely to the supervision of the work of his younger son and partner. His last illness was of brief duration, a sharp attack of pneumonia supervening upon influenza ending fatally.

Dr. Travers married in 1869 Annie Pocock, the daughter of a London solicitor, by whom he had six sons and one daughter. Of the sons one is Professor Morris Travers, F.R.S., the well-known chemist, and till recently professor of chemistry of University College, Bristol; another, Mr. Frederick T. Travers, is surgeon to the West Kent General Hospital; and a third, Dr. Ernest F. Travers, was his father's partner.

Dr. Travers was a keen Freemason, a Past Master of St. Mary's Lodge, and one of the founders of the Cavendish Chapter and of the University of Durham Lodge.

RICHARD SUMNER FOWLER, F.R.C.S. EDIN., M.R.C.S. ENG., L.S.A.

Mr. R. S. Fowler died at his residence, 6, Belmont, Bath, on Dec. 9th, 1906, after a long illness, in his seventy-seventh year. He received his professional education at King's College Hospital and took the diplomas of M.R.C.S.Eng. and L.S.A. in 1852 and 1854 respectively. In 1871 he was admitted a Fellow of the Royal College of Surgeons of Edinburgh. He was at one time a well-known surgeon in Bath but had for some years retired from the active work of the profession. He was for many years on the honorary staff of the Royal United Hospital and at the time of his death was consulting surgeon to that institution. In 1884 he was elected president of the Bath and Bristol branch of the British Medical Association. Mr. Fowler was highly esteemed in Bath and in the year 1859 the citizens, at a public meeting, presented him with a library clock, a barometer, a silver Elizabethan inkstand, an oak chest, and a purse of sovereigns in recognition of his services during an epidemic which affected the town. Mr. Fowler was a staunch Churchman and was for over 32 years churchwarden at St. Paul's Church. He also took a great interest in the

Volunteer movement and joined the Bath Rifles which were founded in 1859. The deceased leaves a widow. The funeral took place at Locksbrook Cemetery, Bath, on Dec. 15th, and was largely attended, amongst those present being several members of the local medical profession and representatives from the Bath Royal United Hospital and the Bath Blue-Coat School.

ALFRED SHEEN, M.D. ST. AND., M.R.C.S. ENG., D.P.H. CANTAB.

Dr. Alfred Sheen, who died at his residence in Newport-road, Cardiff, on Dec. 16th, 1906, was born at Leicester on Sept. 23rd, 1839, and educated at Hurstpierpoint, Madras Medical College, and Guy's Hospital. While at Guy's Hospital he obtained the Physical Society's prize for an essay on dysentery. He graduated as M.D. at the University of St. Andrews in 1862 and was admitted M.R.C.S. Eng. in the following year; in 1888 he took the diploma of D.P.H. Cantab. After becoming qualified he held the appointment of house surgeon to the Cardiff Infirmary for a time and then settled in practice at Cardiff. In 1871 he was appointed honorary surgeon to the Cardiff Infirmary and in 1900 honorary consulting surgeon, which post he held at the time of his death. At the infirmary he did much operative work and was particularly successful with ovariotomies. He took an active part in promoting the efficiency and general welfare of the infirmary. He was honorary secretary of the building committee of the present institution, and was largely instrumental in obtaining from the late Marquis of Bute the gift of the site. Dr. Sheen was one of the founders of the South Wales and Monmouth branch of the British Medical Association, of which he was for many years honorary secretary. He was also President of the branch and secretary of the reception committee when the Association visited Cardiff in 1885. He was one of the original members of the Cardiff Medical Society and did much work for it. In recognition of his services the society, which now numbers over 100 members, elected him this year their first honorary member.

Dr. Sheen's life throughout was one of activity and usefulness. He was a man fearless in his opinions and transparently honest. He contributed articles on various subjects to the medical journals and was also the author of a treatise entitled "The Workhouse and its Medical Officer." Besides his general practice he was until recent years a surgical authority in the district in which he lived. He leaves a widow and a numerous family, one of them being a medical man in Cardiff. The funeral took place at Cardiff Cemetery on Dec. 19th.

Medical News.

UNIVERSITY OF OXFORD.—At examinations held recently in the School of Medicine the following candidates passed in the subjects indicated:—

Mechanics and Physics.—W. H. D. Acland, G. Adam, and W. A. Akers, Christ Church; R. Atkin, Jesus; O. Barkan, Trinity; G. E. Beaumont, University; H. S. Breakspear, St. John's; W. Burridge, Christ Church; D. Ll. Hammick, Magdalen; F. A. Hampton, New College; G. T. Hebert, Christ Church; J. S. Huxley, Balliol; H. E. Jones, Jesus; P. E. Meadon, St. John's; T. R. Merton, Balliol; W. H. Ogilvie, New College; D. R. Parry-Jones, St. John's; A. D. Phœnix, Jesus; P. Pickford, Lincoln; Q. D. Pictor, Exeter; Bindigmavale V. Ramaiengar, St. John's; W. R. Reynell, Balliol; A. H. Simpson, Corpus Christi; D. B. Sothers, St. John's; W. G. K. Sparrow and J. F. Venables, Magdalen; H. T. Vodden, Exeter; C. Whitley, Balliol; G. I. Wishart, Jesus; and R. S. Wix, Brasenose.

Chemistry.—G. Adam and W. A. Akers, Christ Church; R. Atkin, Jesus; G. E. Beaumont, University; W. H. Bleaden, Brasenose; S. M. Bose, Worcester; H. S. Breakspear, St. John's; W. Burridge, Christ Church; G. C. Clarence, Magdalen; W. A. Cooke, Worcester; A. W. Dennis, Keble; D. Ll. Hammick, Magdalen; F. A. Hampton, New College; G. T. Hebert, Christ Church; H. E. Jones, Jesus; A. Juett, Brasenose; S. P. L. Lloyd, Magdalen; T. R. Merton, Balliol; J. S. Morrice, Queen's; P. L. Nortjé, Pembroke; W. H. Ogilvie, New College; W. I. Perrott, Worcester; A. D. Phœnix, Jesus; P. Pickford, Lincoln; W. R. Reynell, Balliol; A. H. Simpson, Corpus Christi; D. B. Sothers and R. O. Spencer-Smith, St. John's; W. D. Standfast, Jesus; R. B. Turbutt, Christ Church; J. F. Venables, Magdalen; H. T. Vodden, Exeter; C. Whitley, Balliol; R. B. Winser, Corpus Christi; G. I. Wishart, Jesus; R. S. Wix, Brasenose; and J. A. Wood, University.

Botany.—P. G. Doyne and L. B. Holland, Trinity; E. G. Martin, New College; E. O'Connor, Lincoln; R. L. Robinson, Magdalen; and G. B. Tarring, Merton.

Physics.—W. A. Cooke, Worcester; G. Cranstoun, Oriel; C. H. F. Harvey, Christ Church; S. P. L. Lloyd, Magdalen; N. S. Lucas, New College; R. C. Ozanne, Hertford; and J. Sainsbury, Oriel.

Organic Chemistry.—A. C. Ballance, New College; C. F. Beevor, B.A., Magdalen; C. F. Cranswick, Exeter; C. B. Fenwick, Magdalen; A. D. Gardner, B.A., University; H. M. C. Green, B.A., Wadham; N. F. Hallows, Keble; C. H. L. Harper, Wadham; S. Hibbert and G. J. Z. Jessel, B.A., University; N. S. Lucas, B.A., New College; A. E. Mavrogordato, M.A., Trinity; R. C. Ozanne, Hertford; T. A. Townsend, New College; and G. H. Varley, B.A., St. John's.

Materia Medica.—R. F. Bridges, B.A., University; C. Goulesbrough, B.A., Christ Church, and G. E. Thornton, B.A., Oriel.

Human Anatomy and Physiology.—F. J. Aldridge, B.A., Magdalene; H. C. Bazett, Wadham; P. N. Cave, B.A., University; G. E. Downs, Magdalene; C. Gouldesbrough, B.A., Christ Church; H. M. C. Green, Wadham; W. D. Kennedy, B.A., University; S. F. Moore, B.A., Trinity; J. A. Noble, B.A., Queen's; J. F. Penson, non-collegiate; and G. E. Thornton, B.A., Oriel.

Pathology.—M. B. Baines, B.A., Exeter; S. Hartill, B.A., and H. A. Philpot, B.A., New College; and S. E. Whitnall, B.A., Magdalene.

Forensic Medicine and Public Health.—B. E. A. Batt, B.A., Trinity; H. H. Carleton, B.A., Keble; E. A. Cockayne, B.A., Balliol; R. Evans, M.A., Jesus; F. Howson, M.A., non-collegiate; and C. T. Raikes, B.A., Trinity.

Medicine, Surgery, and Midwifery.—B. E. A. Batt, B.A., Trinity; C. Beards, B.A., Jesus; H. H. Carleton, B.A., Keble; H. A. Philpot, B.A., New College; H. R. Ramsbotham, B.A., Brasenose; H. G. F. Spurrell, B.A., Merton; and J. Wallace, B.A., Exeter.

Preventive Medicine and Public Health.—*Part I.*: P. de Mello and E. M. Griffiths. *Parts I. and II.*: A. H. Gerrard, H. C. Lecky, B.M., Christ Church; and A. H. Macdonald. *Part II.*: A. H. Hogarth, B.M., Christ Church.

UNIVERSITY OF CAMBRIDGE.—Dr. E. Barclay-Smith has been re-appointed demonstrator of human anatomy for five years.—The following have been examined and approved for the degree of Master of Surgery:—

H. M. Davies, M.A., Trinity; E. H. Douty, M.D., King's; and E. C. Hughes, M.A., Clare.

The following degrees were conferred on Dec. 13th, 1906:—

M.D.—J. M. Bennion, St. John's; and W. L. Ascherson, non-collegiate.

M.C.—E. M. Corner, Sidney Sussex.

M.B.—G. C. E. Simpson, St. John's; and C. F. Fothergill, Emmanuel.

M.B. and B.C.—F. S. Hewett, Caius; F. M. Bulley, Emmanuel; and A. Walker, Emmanuel.

At examinations for Medical and Surgical degrees held in Michaelmas Term, 1906, the following candidates were successful:—

FIRST EXAMINATION.

Part I., Chemistry and Physics.—L. A. P. Anderson, Emmanuel; G. V. Bakewell, Clare; D. S. Bryan Brown, Downing; C. H. Crawshaw, Christ's; S. S. Crosse, Pembroke; J. Deighton, Trinity; J. W. Dew, Clare; E. L. Dobson, King's; G. V. Fiddian, Downing; T. L. Hardy, H. Selwyn; S. M. Hattersley and I. W. Joynt, Emmanuel; J. S. Kennedy, King's; R. S. Keunedy, Christ's; G. L. Keynes, Pembroke; W. O. R. King, Sidney Sussex; J. M. D. Mackenzie, Trinity; Q. Madge, Emmanuel; E. G. Martin, B.A., Trinity Hall; H. H. Mathias, King's; G. O. Maw, Pembroke; M. Moritz, Emmanuel; H. J. S. Morton, Pembroke; F. C. Newman, B.A., Downing; W. M. Oakden, Peterhouse; J. H. Pendered, Caius; M. N. Perrin, Pembroke; M. J. Petty, Downing; E. G. T. Poynder, Clare; P. W. Ransom, Pembroke; H. A. Richards, Clare; F. H. Robbins, Pembroke; H. N. Sealy, Trinity; H. Sharpe, B.A., Pembroke; R. Sherman, Caius; G. D. Sherwood, Emmanuel; T. H. G. Shore, St. John's; F. E. Smith, King's; G. A. Smythe, Emmanuel; L. C. Somervell, King's; V. F. Soothill, Emmanuel; A. K. Soutar, Emmanuel; G. Sparrow, Caius; O. W. D. Steel, Emmanuel; A. L. Sutcliffe, Sidney Sussex; J. F. Taylor, H. Selwyn; G. R. S. Thomas, Downing; W. F. Thompson, King's; J. W. Tonks, Caius; J. E. Trend, Christ's; F. Tweedale, Downing; P. Verdon, Jesus; J. R. Waddy, Pembroke; F. W. Watkyn-Thomas, Trinity; W. G. Watson, Caius; A. M. Wheeler, Sidney Sussex; S. M. Wilcox, Emmanuel; G. Winfield, Downing; J. Winterbotham, King's; C. Worster-Drought, Downing; and A. M. Zamora, Christ's.

Part II., Elementary Biology.—G. V. Bakewell, Clare; H. W. Barnes, Jesus; A. E. Beecroft, Christ's; L. G. Bradfield, Caius; D. S. Bryan Brown, Downing; C. H. Crawshaw, Christ's; J. W. Dew, Clare; C. Ede, King's; G. V. Fiddian, Downing; C. M. Forster, Caius; J. R. Heath, Trinity; A. R. Jenninga, Jesus; R. S. Kennedy, Christ's; G. L. Keynes, Pembroke; W. O. R. King, Sidney Sussex; H. H. Mathias, King's; G. O. Maw, Pembroke; W. M. Oakden, Peterhouse; M. N. Perrin, Pembroke; M. J. Petty, Downing; N. P. Pritchard, Trinity; P. W. Ransom and F. H. Robbins, Pembroke; A. N. Rushworth, Trinity; F. T. Shackell, B.A., Pembroke; R. Sherman, Caius; G. D. Sherwood, Emmanuel; T. H. G. Shore, St. John's; G. Sparrow, Caius; W. F. Thompson, King's; W. F. Thompson, Pembroke; K. S. Thomson, St. John's; J. E. Trend, Christ's; F. W. Watkyn-Thomas, Trinity; G. T. C. Watt, Caius; A. J. Waugh, Pembroke; G. Winfield and C. Worster-Drought, Downing; J. Winterbotham, King's; and A. M. Zamora, Christ's.

SECOND EXAMINATION.

Human Anatomy and Physiology.—C. W. Archer, B.A., Trinity; H. L. Attwater, B.A., Pembroke; H. W. Barber, Clare; A. M. Bodkin, King's; L. Bromley, B.A., and W. H. Cam, B.A., Caius; A. S. Cane, B.A., King's; W. T. Chaning-Pearce, Emmanuel; K. Comyn, B.A., H. Selwyn; J. P. H. Davies, B.A., Jesus; J. E. Dick, B.A., Downing; C. A. Dottridge, B.A., Clare; H. L. Duke, B.A., Caius; E. A. Dyson, B.A., Jesus; A. Feiling, B.A., Pembroke; R. H. W. Fisher, B.A., Emmanuel; P. K. Gilroy, B.A., H. Selwyn; S. Gordon, B.A., Pembroke; A. R. Hargreaves, B.A., Trinity; G. Holmes, Caius; R. H. Hutchinson, B.A., Clare; P. C. V. Jones, B.A., and R. F. Jones, St. John's; G. C. Kidd,

Christ's; A. C. C. Lawrence, Trinity; W. Ledlie, M.A., Christ's; N. F. Lock, Caius; G. C. Lim, St. John's; A. F. Morcom, B.A., Clare; C. G. H. Morse and N. Mutch, Emmanuel; R. F. Percival, B.A., Trinity; W. S. Perrin, B.A., Caius; L. Powell, King's; E. L. N. Rhodes, B.A., H. Selwyn; P. E. W. Rogers and R. C. Staples-Browne, M.A., Emmanuel; H. S. C. Starkey, Downing; C. J. Stocker, Trinity; R. M. R. Thursfield, B.A., H. Selwyn; W. W. C. Topley, St. John's; V. T. P. Webster, B.A., Emmanuel; J. M. Weddell, B.A., Christ's; H. M. Whiting, Downing; and N. S. Williams, Clare.

THIRD EXAMINATION.

Part I., Pharmacology and General Pathology—G. C. Alderson, B.A., Caius; F.R. Armitage, B.A., Pembroke; W. Boys-Stones, B.A., Caius; R. D. D-D. Brownson, B.A., St. John's; J. P. Buckley, B.A., Trinity; H. V. B. Byatt, B.A., Clare; H. B. Carlyll, B.A., St. John's; F. G. Caley, B.A., Pembroke; H. G. P. Castellain, M.A., Trinity; F. G. Cawston, B.A., Caius; A. J. Clark, King's; J. H. Crofton, B.A., Pembroke; G. H. Davy, B.A., and H. B. Elton, B.A., Caius; P. Fildes, B.A., J. C. Fox, B.A., W. B. Gourlay, B.A., and G. Graham, B.A., Trinity; C. B. Heald, B.A., Caius; T. S. Hele, B.A., Emmanuel; R. F. Higgin, B.A., and C. H. T. Hott, B.A., Caius; F. A. Juler, B.A., and B. T. Lang, B.A., Trinity; R. Knowles, B.A., Downing; W. E. Lee, M.A., Trinity; K. A. Lees, B.A., King's; A. J. May, B.A., Sidney Sussex; B. H. Palmer, B.A., Pembroke; J. M. Postlethwaite, B.A., Emmanuel; A. V. Poyser, B.A., Magdalene; K. D. Pringle, B.A., Caius; H. G. Rice, B.A., St. John's; E. N. Russell, B.A., Trinity; J. G. Saner, Caius; M. R. Sawhney, B.A., Downing; L. Shingleton-Smith, B.A., St. John's; G. L. Siddle, B.A., and H. C. Snell, B.A., Caius; T. S. Sunn, B.A., Christ's; G. Walker, B.A., Trinity; R. R. Walker, B.A., St. John's; C. F. O. White, B.A., Trinity; and H. B. Wilson, B.A., Pembroke.

Part II., Surgery, Midwifery, and Medicine.—The following have now satisfied the examiners in all three sections: E. E. Atkin, B.A., Caius; L. J. Austin, B.A., Sidney Sussex; I. G. Back, Trinity Hall; G. F. S. Bailey, B.A., Caius; A. S. B. Bankart, B.A., Trinity; F. A. Barker, B.A., Emmanuel; A. S. Burgess, M.A., Caius; C. Cassidy, B.A., Sidney Sussex; H. P. Crampton, M.A., Clare; A. H. Fardon, M.A., and H. J. Fardon, M.A., Christ's; J. F. Gaskell, M.A., Caius; H. J. Gauvain, B.A., St. John's; G. W. Goodhart, B.A., Trinity; J. M. P. Grell, B.A., H. Selwyn; T. S. Hele, B.A., Emmanuel; R. A. P. Hill, B.A., Caius; C. W. Hutt, B.A., Trinity; J. H. Iles, B.A., Caius; P. P. Laidlaw, B.A., J. W. Linnell, B.A., and Otto May, M.A., St. John's; J. Mellanby, M.A., Emmanuel; H. F. G. Noyes, B.A., Caius; B. K. Nutman, B.A., Jesus; G. G. Packe, Trinity; D. G. Pearson, B.A., Pembroke; W. O. Pitt, B.A., Emmanuel; C. H. Rippmann, B.A., King's; D. W. Roy, B.A., Sidney Sussex; A. L. H. Smith, Caius; W. H. R. Sutton, B.A., Downing; W. S. Treasawna, B.A., Sidney Sussex; H. A. R. E. Unwin, B.A., H. Selwyn; R. Wade, B.A., Christ's; S. L. Walker, B.A., Sidney Sussex; J. K. Willis, B.A., Queen's; N. Wilson, B.A., Pembroke; and F. P. Young, B.A., Christ's.

THE INCORPORATED INSTITUTE OF HYGIENE.—A lecture will be delivered at 34, Devonshire-street, Portland-place, W., on Wednesday, Jan. 9th, at 4 P.M., under the auspices of the above institute, by Professor W. D. Halliburton, the subject being "The Diet of To-day." Tickets, price 2*s.* 6*d.*, including admission to the health exhibition, can be obtained by applying to the secretary of the institute at the above address.

NEW HOSPITAL IN ST. PETERSBURG.—The *Torg. Prom. Gazeta* announces with great satisfaction the opening of the new St. Petersburg town hospital near the children's hospital, the beds in which latter cost £480 each; whereas the beds of the new one cost but £85 each. The total cost of the new institution was £24,000 and that of the children's hospital was several hundred thousand pounds, and the new one is better installed, says the journal, in every way.

LITERARY INTELLIGENCE.—Under the title of the *British Journal of Tuberculosis* a new medical publication will shortly make its appearance, with Dr. T. N. Kelynack as editor. We wish the undertaking every success. The new journal will not only deal with the purely scientific aspect of tuberculosis but also with the many medico-sociological problems which gather round the disease, especially in regard to prophylaxis. The names of those authorities who will contribute to the first number clearly demonstrate the influential support which has been obtained. Special articles on the study of tuberculosis will appear from the pens of Professor T. Clifford Allbutt and Dr. R. W. Philip. There will also be a discussion on the Care and Control of the Consumptive Poor—in England and Wales, by Sir Richard Douglas Powell; in Scotland, by Dr. Byrom Bramwell; and in Ireland, by Sir John William Moore. Original papers will also be contributed by Sir Lauder Brunton, Sir Hermann Weber, and Sir Samuel Wilks. With the addition of certain editorial matter the first number should prove very interesting. The journal will be published by Baillière, Tindall, and Cox. It will appear quarterly. Single numbers may be purchased at 1*s.* 6*d.* each, whilst the annual subscription will be 5*s.*, post free.—Canon Kingsley, in a lecture in 1859, pointed out that it is our duty to see that every child who is born shall be developed to the highest pitch which is possible. A work entitled "The Infant, the Parent, and the State," by Mr. H. Llewellyn Heath, is shortly to be published by Messrs. P. S. King and Son. The book is an attempt to bring forward facts in a form easily assimilated which are of moment, because in caring for the infant we are improving the child, and the child of to-day is the parent of the next generation. The author in his work deals with infant and child mortality, parentage, the milk-supply, existing and required agencies and organisations of importance to infant life, and the illegitimate infant.—Mr. Edward Stanford announces for immediate publication "The Pocket Guide to the West Indies," by Mr. Algernon E. Aspinall. It is an entirely new work and is intended to meet the varied requirements of the large and increasing number of tourists and others who, for reasons of health, pleasure, or business, visit our West Indian possessions. The volume will be of convenient size and will be well provided with illustrations and maps.

LONGEVITY.—At the meeting of the Long Ashton (Somerset) board of guardians held on Dec. 28th, 1906, a letter was read from Mr. F. Weatherly, M.R.C.S. Eng., L.S.A., J.P., the chairman, stating that he was prevented from attending the meeting and inclosing a photograph of himself and Honor Coleman. Beneath the photograph was printed: "The chairman, in his 87th year, and Honor Coleman, in her 106th year, of the Long Ashton Union, Somerset. December, 1906." Mr. Weatherly in his letter states that Honor Coleman's mother was accidentally drowned in her hundredth year and that Honor Coleman was baptised on Feb. 22nd, 1801, at Weston Zoyland, Somerset.—Mr. Francis Whitfield died at Newport (Mon.) on Dec. 20th, 1906, aged 101 years. He was born at Bampton, Devon, and had resided for many years in Newport.—Mrs. Cochrane, who celebrated the 101st anniversary of her birthday in May last, died at Southsea on Dec. 28th, 1906.—The *Times* of Jan. 2nd states that on Jan. 1st James Grieve, a Dumbartonshire shepherd, celebrated his 107th birthday.

BRITISH ELECTRO-THERAPEUTIC SOCIETY.—The annual conversazione and exhibition of new apparatus held under the auspices of this society took place at the Queen's Small Hall, Langham-place, W., on Dec. 14th, 1906, and was attended by a large number of the medical profession. It was owing to the continued growth of the number and amount of the exhibits as well as the greatly increased attendance that it became necessary to take a larger hall than was provided at the rooms of the Medical Society in Chandos-street, where these gatherings have been held in the past. Both the exhibits and the attendance were on this occasion larger than ever before, which goes to show the steadily increasing interest of the medical profession in the use of electrical methods in the diagnosis and treatment of disease. To take the exhibits in the order in which they were arranged around the room, we noted the following points of interest. Messrs. Krupka and Jacoby showed a universal apparatus for use in all cases requiring constant, sinusoidal, or faradic current and vibratory massage; also a universal wall-set for x ray work. Harry W. Cox, Limited, showed several coils and a very extensive set of x ray apparatus. Messrs. Watson showed in addition to their intensified induction coils a very neat and novel form of jet break worked by the core of the coil itself, in which the usual liquid dielectric was replaced by an atmosphere of coal gas. It seemed to work very well and there is practically no churning up of the mercury. It attracted a great deal of attention and its behaviour in practice will be watched with no little interest. A new form of x ray tube, with air-cooled anode, by Bauer, was shown working from Messrs. Watson's coil. The workmanship of this tube is of a high order and it is claimed that it can be depended upon to keep to any given degree of hardness for long periods of working. Mr. K. Schall showed in addition to his excellent x ray coils the only orthodiagraph at the exhibition. This instrument is invaluable for giving a perfectly correct outline of the heart, &c., and is one that should be in use in this country to a far greater extent than it is. A conspicuous feature of Messrs. Newton and Co.'s exhibit was a large induction coil of the extra heavy discharge type, the output of which was somewhat of a revelation to many of those present. Mr. A. C. Cossor showed

a very fine collection of x ray tubes of his own manufacture—one a combined valve and x ray tube which is giving great satisfaction, and another worthy of special mention was a new form of water-cooled tube which can be used in any position, where the anode was made of solid platinum and the water in actual contact with its back. This tube bears heavy currents remarkably well and is likely to become popular among x ray workers. Mr. Leslie Miller's exhibit was noteworthy on account of his well-known jointless section induction coils which were shown working with a Caldwell break. A novel feature among those shown by the Medical Supply Association was a new modification of Gaiffe's mercury jet break by which it is made to work with alternating currents, enabling the coil to be worked directly from the alternating current mains. This works very well and will be a great boon to those to whom the direct current is not available. The exhibit of the Sanitas Electrical Company was a very extensive one, embracing every branch of treatment in which electricity forms an essential part. Mr. A. E. Dean showed several protecting devices for confining the rays to the place required and also his new form of static machine where the ordinary belt drive is replaced by a chain drive. By thus insuring synchronism in the rotation of the plates Mr. Dean claims to secure a much higher efficiency. The Electro-Medical Company of Liverpool showed a very neat and portable three-phase apparatus which can be worked by an accumulator or from the main. Mr. James Barker showed his machine for vibration treatment which is one of the most successful on the market. Many medical books bearing on these subjects were shown by G. Kuner and Co., and Mr. Ernest Parker had on view a very good x ray couch. The Helis Cell and Accumulator Company's new rechargeable dry cell attracted no little attention and would seem to have an important future before it.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BROWN, W., M.B., B.S. Edin., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Braemar District of the county of Aberdeen.

CHAMPTALOUP, SYDNEY T., M.B., Ch.B., has been appointed House Surgeon at the Cardiff Infirmary.

COATES, CHARLES JOSEPH ADAMS, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer for the Fourth District by the Shepton Mallet (Somerset) Board of Guardians.

FINCH, ALEXANDER HENRY, L.R.C.P. Lond., M.R.C.S., has been appointed Public Vaccinator for the First District by the Shepton Mallet (Somerset) Board of Guardians.

KYNOCH, J. A. C., M.B., F.R.C.P., F.R.C.S. Edin., has been appointed Extern Examiner in Midwifery at the University of Durham.

MACKINNON, MURDOCH, M.B., Ch.B. Edin., has been appointed House Surgeon at the Cardiff Infirmary.

MASON, SAMUEL BUTLER, M.R.C.P. Edin., L.F.P.S. Glasg., L.S.A., has been re-appointed Medical Officer of Health of Pontypool.

SHARP, HUGH CULLIFORD, B.A., M.B., B.C Cantab., has been re-appointed Medical Officer of Health of Truro (Cornwall).

SHEPPARD, AMY, M.B. Lond., D.P.H. Camb., has been appointed Ophthalmic Surgeon to the Canning Town Hospital.

WATKINS, WILLIAM RICHARD SPENCER, M.B., Ch.B. Edin., has been appointed Resident Medical Officer at the Cardiff Infirmary.

WATSON, G. W., M.D. Lond., M.R.C.P. Lond., has been appointed Pathologist to the Leeds Public Dispensary and Honorary Assistant Physician to the Association for the Prevention and Cure of Tuberculosis.

YOUNG, G. P., L.R.C.P. Lond., M.R.C.S. Eng., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Stoney Stanton District of the county of Leicester.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH ROYAL UNITED HOSPITAL.—Resident Medical Officer. Salary £100 per annum, with board, lodging, and washing.

BIRMINGHAM, QUEEN'S HOSPITAL.—House Physician. Salary at rate of £50 per annum, with board, lodging, and washing.

BOURNEMOUTH, ROYAL NATIONAL SANATORIUM.—Resident Medical Officer. Salary £10 per month, with rooms, board, and washing.

BRISTOL ROYAL HOSPITAL FOR SICK CHILDREN AND WOMEN.—House Surgeon. Salary £30 per annum, with board, rooms, and attendance.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, residence, and laundry.

CARMARTHEN, CARDIGAN, AND PEMBROKE JOINT COUNTIES LUNATIC ASYLUM, Carmarthen.—Junior Assistant Medical Officer. Salary £150, with rooms, board, washing, and attendance.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—House Physician for six months. Salary at rate of £50 per annum, with board, residence, and washing.

DOWN DISTRICT ASYLUM, Downpatrick.—Junior Assistant Medical Officer, unmarried. Salary £130, rising to £150, with board, residence, and laundry.

DUMFRIES AND GALLOWAY ROYAL INFIRMARY.—Assistant House Surgeon. Salary £25 per annum, with board and washing.

EDINBURGH SCHOOL BOARD.—Medical Officer. Salary £400.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton.—Resident House Physicians for six months. Honorarium of £25.

KING EDWARD VII. SANATORIUM, Midhurst, Sussex.—Pathologist, unmarried. Salary £250 per annum, with board, lodging, and attendance. Also Two House Physicians, unmarried. Salary 50 guineas per annum, with board, lodging, and attendance.

LONDON LOCK HOSPITAL.—House Surgeon to the Male Hospital, Soho. Salary £80 per annum, with board, lodging, and washing.

LONDON TEMPERANCE HOSPITAL.—Assistant House Surgeon. Salary at rate of £75 per annum.

LIVERPOOL DISPENSARIES.—Head Surgeon, unmarried. Salary £200 per annum, with board and apartments. Also Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

LIVERPOOL STANLEY HOSPITAL.—House Surgeon. Salary £50 per annum, with board, residence, and washing.

MANCHESTER, ST. MARY'S HOSPITALS.—District Obstetric Officers.

MARGATE, ROYAL SEA-BATHING HOSPITAL.—Resident Surgeon. Salary at rate of £80 per annum, with board and residence.

NORFOLK AND NORWICH HOSPITAL.—Assistant House Surgeon for six months. Salary £20, with board, lodging, and washing.

PADDINGTON GREEN CHILDREN'S HOSPITAL, London, W.—Surgeon to the Throat and Ear Departments. Also Physician to Out-patients.

PADDINGTON INFIRMARY AND WORKHOUSE.—Assistant Medical Officer. Salary £120 per annum, rising to £150, with board, lodging, and washing.

PERU, CAYLLOMA SILVER MINES.—Medical Officer, unmarried. Salary £25 per month on three years' contract, with rooms and living expenses.

PLYMOUTH, SOUTH DEVON AND EAST CORNWALL HOSPITAL.—House Surgeon. Salary £100, with board, residence, and washing.

ROYAL DENTAL HOSPITAL, Leicester-square, London, W.C.—Demonstrator of Practical Dental Surgery. Stipend £80.

SAMARITAN FREE HOSPITAL FOR WOMEN, Marylebone-road, N.W.—Clinical Assistants.

SEAMEN'S HOSPITAL SOCIETY, DREADNOUGHT HOSPITAL, Greenwich.—Dental Surgeon. Also Medical Officer in Charge of the Electrical Department. Also Medical Registrar.

SHEFFIELD, UNIVERSITY OF SHEFFIELD.—Chair of Pathology.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—House Physician. Salary £100 per annum, with rooms, board, and washing.

STAFFORDSHIRE GENERAL INFIRMARY, Stafford.—Assistant House Surgeon. Salary at rate of £62 per annum, with board, residence, and laundry.

STROUD GENERAL HOSPITAL.—House Surgeon. Salary £100 per annum, with board, lodging, and washing.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Senior Resident Medical Officer (salary £200 per annum); also Two Assistant Resident Medical Officers (salary £30 per annum), with board and lodging in each case. All unmarried.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—Senior Resident Medical Officer. Salary £105, with board, residence, and washing. Also Surgeon to Out-patients.

WOKINGHAM, BERKS, LONDON OPEN-AIR SANATORIUM, Pinewood.—Assistant Medical Officer. Salary £100 per annum and all found.

WOLVERHAMPTON AND MIDLAND COUNTIES EYE INFIRMARY.—House Surgeon. Salary £70 per annum, with rooms, board, and washing.

WORCESTER GENERAL INFIRMARY.—House Physician. Sala. y £80 per annum, with board and residence.

WREXHAM INFIRMARY.—Resident House Surgeon. Salary £80 per annum, with board, lodging, and washing.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeon under the Factory and Workshop Act at Midsomer Norton, in the county of Somerset; at Elstree, in the county of Hertford; at Bedford, in the county of Bedford; and at Wantage, in the county of Berks.

Births, Marriages, and Deaths.

BIRTHS.

BALLANCE.—On Dec. 27th, 1906, at Royal-terrace, Weston-super-Mare, the wife of H. Stanley Ballance, M.D., B.S., of a son.

GREENWOOD.—On Dec. 24th, 1906, at Sowood House, Ossett, Yorks, the wife of William Greenwood, M.R.C.S., L.R.C.P., of a daughter.

SMARTT.—On Dec. 27th, 1906, at Bowmere Cottage, Tarporley, Cheshire, the wife of Walter Smartt, F.R.C.S. Irel., of a son.

DEATHS.

BEST.—At 42, Mayfield-road, Edinburgh, on Nov. 30th, 1906, Caroline, daughter of the late J. Tonkin Young and Lucy Bisset, of St. Mary-at-Hill, London, and wife of Paleman Best, M.B., J.P., of St. Ives, Cornwall, and Louth, Lincolnshire, in her 74th year.

NETHERCLIFT.—On Dec. 28th, 1906, at Thornhurst, Bournemouth, William Henry Netherclift, F.R.C.S., J.P., of Canterbury, aged 60 years.

PALEY.—On Dec. 1st, 1906, at East London, South Africa, James Hewitt Paley, M.R.C.S., L.S.A., L.R.C.P., third son of the late Dr. James Paley of York, aged 54.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

"VIAVI TREATMENT."

In our issue of Dec. 15th, 1906, we quoted a note from the *Liverpool Daily Post* about the meetings of the Viavi Company in which we expressed our sorrow that a large number of women in Liverpool could be found to listen to the Viavi lectures. We also animadverted strongly upon the literature issued by the Viavi Company and commended what we had said upon other occasions about this company to the notice of the *Liverpool Daily Post*. We have now received from the manager of the journal in question a letter containing the following passage: "I need not say that we were not aware of the nature of the Viavi Company's business but now that we know we have given strict instructions that not only are no references to the company's 'meetings' to be made in our papers but that none of their advertisements are to be accepted." We most warmly congratulate the authorities of the *Liverpool Daily Post* upon the step which they have taken and we do not think or not moment that if they had been aware of the nature of the Viavi Company's business they would have aided the said company by any notice, but for the instruction of the *Liverpool Daily Post* and of any other lay journal which may see this paragraph it may be laid down as an absolute canon that any one purporting to give lectures on beauty treatment, women's diseases, or health lectures, except those given under the auspices of municipal health committees or the National Health Society or other authoritative body, is quite certain to be a quack. The opportunity to such people for obtaining ill-gotten gains is almost entirely due to the facilities which certain newspaper and magazine proprietors afford them of flaunting their wares in the face of the public. The popular sixpenny magazines are by far the greatest sinners in this respect. Their attention has been drawn to the matter over and over again, but page after page filled with such advertisements continue to appear. We congratulate the *Liverpool Daily Post* most heartily and hope that its admirable example will be followed by the proprietors of other newspapers.

ATTENDANCE ON WORKMEN.

To the Editors of THE LANCET.

SIRS,—I am constantly having accident cases under my treatment. Sometimes the foreman of the works is sent with the case, at other times the patients come alone. Can you kindly inform me if medical men have any claims on the masters in these circumstances? Most of the masters pay for the first dressing at any rate, but what I want to know is whether they are legally compelled to pay? I have at the present time half-a-dozen cases, some in my lodges, others not, but the principle is the same. I am, Sirs, yours faithfully,

Dec. 24th, 1906. SURGEON.

*** (1) If a medical man is sent for to the works or an employee is brought to a surgery by a foreman or other accredited agent of an employer the medical man can charge for the one attendance; and (2) unless a medical man is definitely instructed to attend and afterwards to continue to attend by the employer or his agent he can only look to the workman for payment.—ED. L.

THE PSYCHOLOGICAL SIDE OF INSTANTANEOUS PHOTOGRAPHY.

An interesting paper appeared in the *Photographic News* of Oct. 26th, 1906, by Mr. Adolphe Abrahams, B.A., bearing this title. Mr. Abrahams says that if a photographer wishes to photograph an express train he will focus his camera upon say a conspicuous post or marked sleeper which the train must pass and attempt to release the shutter and make the exposure exactly at the critical instant. But when is that? Mr. Abrahams's reckonings are on the assumption that the train is travelling at 60 miles per hour, or 88 feet in one second. He points out that as by an electrical arrangement it can be demonstrated that a certain fraction of a second, one-eighth, will elapse before a stimulus given by one person to the consciousness of another person will call forth the cerebral processes necessary to bring about the movements involved in a responding signal, a perfectly logical inference would be that the photographer must release the shutter of the camera one-eighth of a second before the train has reached the marked object chosen, an eighth of a second in those circumstances being equivalent to an 11-feet movement by the train. But, as a matter of fact, if the photographic plate in the camera is exposed when the train has reached a spot 11 feet before the marked object it will be found when the plate is developed that the exposure was made too soon. Mr. Abrahams goes on to say that in exposing another plate in similar circumstances, except that the shutter was released at the "desired instant, and not beforehand" (that is, when the train had apparently reached the marked object and not 11 feet before it), a successful result was obtained. "What, then, becomes of the one-eighth of a second? How is it compensated for by the nervous mechanism?" asks Mr. Abrahams, and he answers those questions by saying, "However fanciful such a statement may appear, I believe that one can see in advance of a moving object and can anticipate its course so that the brain is, as it were, misled into the idea that the express train has reached the marked spot and that it is consequently time to expose when in reality the train is 11 feet away." Mr. Abrahams says he has been assured that this idea of anticipation is quite a familiar one to psychologists and he adds that his views are not put forward dogmatically but with the desire to invite discussion. A correspondent in the issue of the same journal of Nov. 16th states that Mr. Abrahams has allowed for inertia or for a discrepancy that did not exist, as the objects were in full view and their approach watched and the brain and muscles ready, but Mr. Abrahams replies in the following week's issue that the one-eighth of a second is known to himself to be his reaction period for expected stimuli.

A member of our staff who has had some practical experience in the matter has written to us as follows in regard to the paper and the questions involved. "I have never worked," he says, "with focal plane shutters, but there is no doubt they act very rapidly. Speaking of the Thornton Pickard 'focal plane' shutter one dealer describes it thus: 'the "focal plane" shutter fits at the back of the camera and the dark slide fits into the back of the shutter. The shutter blind therefore works just in front of the plate and has a narrow slit in it the full width of the plate, which gives the exposure as it passes rapidly across. The speed is regulated by means of a small knob.' The ordinary shutter works either just in front of or just behind the lens. Messrs. Ross, Limited, of London advertise a focal plane camera which they claim gives instantaneous exposures from $\frac{1}{5}$th to $\frac{1}{1000}$th of a second. An ordinary pocket Kodak shutter will give an exposure of about one twenty-fifth of a second—that is to say, the time when the lens is actually uncovered. It seems to me, however, that it must take in addition one-eighth of a second to press the button or shutter release. Some time ago I discovered that it took me at my fastest rate one-eighth of a second to depress the key letter 'n' of the 'Remington' typewriter, as I wrote the letter 'n' 39 times in five seconds, and allowing one-eighth of a second for my brain and muscles to receive the signal to start, this equals one-eighth of a second to depress the key. This time, it seems, should be added to the very small amount of time occupied in the actual 'taking' of the photograph. I do not see that Mr. Abrahams, who is an expert, mentions this, but it seems to support his views. Most of us are agreed that we often visualise an action by our previous experience a moment before the act. I suppose, of course, that Mr. Abrahams took into account the accuracy of the view finder and the absolute rigidity of the camera when the shutter was released and also the question of the binocular parallax or the difference between the position of an object as seen with the one eye and with the other, the head remaining unmoved. Many of us have heard of travellers' tales of having seen at an Indian fakir's entertainment a boy climbing up a beanstalk into space when the camera has shown afterwards that there were no beanstalk and no boy, but, on the other hand, the camera has sometimes depicted an alleged spook peering over the shoulder of a 'medium' when the human eye has seen nothing. Information on focal plane shutters and an exposure table for moving objects may be seen in 'The British Journal Photographic Almanac for 1907.' This table states that 'it is more difficult to obtain good instantaneous pictures the nearer the object is and the longer the focus of the lens,' and that if a horse is moving at the rate of five feet per second, at a distance of 1000 times the focus of the lens away, the image will be sufficiently sharp if the exposure is $\frac{1}{15}$th of a second, but if the horse is only 100 times the focus distant then the exposure should be ten times shorter or $\frac{1}{150}$th of a second." Mr. Abrahams refers those interested in the subject of the reaction period to "Halliburton's Text-book of Physiology." The editor of the *Photographic News* thinks that, "as Mr. Abrahams points out in his article, this power of anticipating the exact circumstances desired in the result is due to a nervous tension that becomes exaggerated in certain instances, occasionally causing the exposure to be made unconsciously before the right moment has arrived." The subject presents some interesting little problems in psycho-physiology.

THE WILL OF SIR THOMAS BROWNE.

To the Editors of THE LANCET.

SIRS,—*Precaut!* On verifying my reference I find that the phrase "My body ..... on signs of putrefaction," occurs in the last will of Sir William Browne, M.D. (1692-1774), and not of Sir Thomas Browne as before stated. I am Sirs, yours faithfully,

Dec. 27th, 1906. S. B. A.

ENGLISH AS SHE IS WROTE.

THE ancient city of Reims is celebrated for two things—one for the possession of a magnificent cathedral and the other for being the centre of the champagne industry. It also boasts an orthopædic surgical clinic which issues a bimensal journal, and in a number of this publication which lies before us, dated May, 1904, is a delightful prospectus, which we quote below, of the work carried on at the institution. The English reader will note certain peculiarities in the rendering of his mother tongue, but it is quite possible that if some English reader had to render the correct

English into French he would make just as ludicrous mistakes. Curiously enough we have before us also a prospectus of meetings of the French Salon in London in which on several occasions we see as the French of "The discussion will be opened by—" the words, "Sujet ouvert par —." This might well be taken to mean, "The body of a subject will be dissected." The proper phrase is, "La discussion sera ouverte," or "Discussion contradictoire sur, &c. Avis favorable présenté par —. Avis contraire par —" (instead of "opposé par"). So much for English-French, now for French-English.

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THE CASE OF MR. PEERS.

To the Editors of THE LANCET.

SIRS,—I am pleased to acknowledge the following additional contributions, which, together with my own contribution of one guinea, make the sum of £35 6*s*. The fund being now closed I am forwarding to Mr. Peers this amount, which I believe will be almost sufficient to reimburse him. Needless to say, I am very grateful for the liberal response which my proposal has met with.

I am, Sirs, yours faithfully,
Old Kent-road, S.E. C. H. PRING.

	£	*s.*	*d.*
Amount previously acknowledged	31	12	6
Sir Hugh Beevor... ...	1	1	0
Mr. F. W. Brook	0	10	6
Mr. R. W. Counceli ...	0	10	6
Mr. R. P. Marshall ...	0	10	6

THE TREATMENT OF "NEURALGIA."

To the Editors of THE LANCET.

SIRS,—Any recommendations for treatment in the following case will be most thankfully received. The patient, an elderly lady, of full habit, complains of pain and weakness in left shoulder, arm, and forearm; she cannot do her hair, nor make sufficient pressure on paper to steady it in writing a letter. Tenderness is not very marked either in the course of the nerves or in the region of the posterior roots of the spinal nerves. A distinguished physician diagnosed brachial neuralgia, and so far nothing has relieved her. She has tried many things prescribed by doctors and her friends, including galvanism and high-frequency currents.

I am, Sirs, yours faithfully,
Jan. 1st, 1907. G.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (7th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (3 P.M.), St. Mark's (2.30 P.M.).

TUESDAY (8th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.), Tottenham (2.30 P.M.).

WEDNESDAY (9th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.).

THURSDAY (10th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (2.30 P.M.), Tottenham (Gynæcological, 2.30 P.M.).

FRIDAY (11th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.).

SATURDAY (12th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (8th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover-square, W.).—8.30 P.M.: Papers:—Dr. G. N. Pitt, Dr. M. S. Pembrey, and Dr. R. W. Allen: Observations upon Cheyne-Stokes's Respiration.—Dr. F. Taylor, Dr. M. S. Pembrey, Dr. A. P. Beddard, and Dr. H. French: Observations upon Two Cases of Cheyne-Stokes's Respiration. Special Demonstrations (Epidiascope and Microscopes) by Mr. A. MacLennan and Mr. J. J. Clarke.

SOCIETY FOR THE STUDY OF INEBRIETY (11, Chandos-street, Cavendish-square, W.).—7.30 P.M.: Council Meeting. 8 P.M.: Discussion on the Education of the Public respecting Alcohol in its Relation to Physical Deterioration (opened by Mr. W. McAdam Eccles). (Illustrated by lantern demonstration.)

WEDNESDAY (9th).—DERMATOLOGICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—5.15 P.M.: Meeting.

HUNTERIAN SOCIETY (St. Bartholomew's Hospital).—4 P.M.: Clinical Afternoon.

THURSDAY (10th).—BRITISH GYNÆCOLOGICAL SOCIETY (20, Hanover-square, W.).—8 P.M.: Annual General Meeting. Valedictory Address: The President.

FRIDAY (11th).—WIMBLEDON AND DISTRICT MEDICAL SOCIETY (Worple Hall, Worple-road, Wimbledon).—9 P.M.: Clinical Evening.

CLINICAL SOCIETY OF LONDON (20, Hanover-square, W.).—8.30 P.M.: Papers:—Dr. F. H. Hawkins: A Case of Acute Pneumonia with Abscess of the Lung and Acute Endocarditis.—Dr. Forsyth: A Fatal Case of Myxœdema with Changes in the Parathyroid.—Dr. Langmead (introduced by Dr. Garrod): The Association of Tetany with Dilatation of the Large Intestine.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (7th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. J. H. Sequeira: Clinique. (Skin.) 5.15 P.M.: Lecture:—Sir J. Barr (Liverpool): Pleural Effusion.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Mr. Dunn: Diseases of the Eye.

TUESDAY (8th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Dr. C. O. Hawthorne: Clinique. (Medical.) 5.15 P.M.: Lecture:—Prof. W. E. Dixon: Blood Pressure and the Influence of Drugs upon it.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Moullin: Gynæcology. 2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Dr. Abraham: Diseases of the Skin.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—4.30 P.M.: Lecture:—Mr. H. W. Carson: Peritonitis, its Pathology, Diagnosis, and Treatment.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Dr. F. Buzzard: Myelitis.

WEDNESDAY (9th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. J. Clarke: Clinique. (Surgical.) 5.15 P.M.: Lecture:—Dr. H. Campbell: The Rôle of Blood Pressure in Disease.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. Dr. Saunders: Diseases of Children. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—2.30 P.M.: Cliniques:—Dermatological (Dr. Meachen), Ophthalmological (Mr. Brooks), Medical (Dr. Whipham).

THURSDAY (10th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M.: Lecture:—Mr. M. Yearsley: General Diseases in Relation to the Ear.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations. Mr. Dunn: Diseases of the Eye.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—2.30 P.M.: Cliniques:—Gynæcological (Dr. Giles), Medical (Dr. Whiting), Surgical (Mr. Carson). 3 P.M.: Clinique:—Medical In-patient (Dr. Chappel). 4.30 P.M.: Lecture:—Mr. H. W. Carson: Peritonitis, its Pathology, Diagnosis, and Treatment.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—6 P.M.: Chesterfield Lecture:—Dr. M. Dockrell:—Para-tuberculides (due to Tuberculous Toxins): I., Macular; II., Papular; III., Pustular; IV., Pigmentary.

FRIDAY (11th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M.: Mr. W. Stuart-Low: Clinique. (Ear.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Moullin: Gynæcology. 2 P.M.: Medical and Surgical Clinics. Dr. Ball: Diseases of the Throat, Nose, and Ear. 2.30 P.M.: X Rays. Operations. Dr. Abraham: Diseases of the Skin.

NORTH-EAST LONDON POST-GRADUATE COLLEGE (Tottenham Hospital, N.).—9.30 A.M.: Clinique:—Surgical (Mr. H. Evans). 2.30 P.M.: Cliniques:—Medical (Dr. Auld), Ophthalmological (Mr. Brooks). 3 P.M.: Clinique:—Medical In-patient (Dr. R. M. Leslie).

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M.: Clinical Lecture:—Dr. F. Buzzard: Cerebral Tumours.

SATURDAY (12th).—POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—10 A.M.: Dr. Ball: Diseases of the Throat, Nose, and Ear. 2 P.M.: Medical and Surgical Clinics. 2.30 P.M.: X Rays. Operations.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1906, which was completed with the issue of Dec. 29th, are given in this number of THE LANCET.

VOLUMES AND CASES.

VOLUMES for the second half of the year 1906 will be ready shortly. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

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The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Jan 3rd, 1907.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radiation. Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Dec. 28	29·396	N.W.	0·12	45	37	28	...	33	Cloudy
,, 29	29·720	N.E.	0·07	43	38	33	33	31	Snowing
,, 30	29·810	N.E.	0·02	39	38	27	35	37	Cloudy
,, 31	29·540	S.W.	0·32	50	45	37	37	37	Overcast
Jan. 1	29·624	S.W.	0·06	52	52	37	42	43	Cloudy
,, 2	29·100	S.W.	0·37	56	50	43	47	49	Cloudy
,, 3	29·280	W.	0·01	59	43	39	39	42	Cloudy

During the week marked copies of the following newspapers have been received. *Daily Mail, Leeds Post, Standard, Daily Telegraph, Birmingham Post, Bristol Mercury, Freeman's Journal, Hull Mail, Belfast Whig, Sheffield Independent, Sheffield Telegraph, Westminster Gazette, Daily News, The Garden, Pharmaceutical Journal, Chemical News, Dublin Times, Liverpool Courier, Army and Navy Gazette, Broad Arrow,* &c.

Communications, Letters, &c., have been received from—

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